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ŒSOPHAGEAL STRICTURE AND ITS SUCCESSFUL TREATMENT BY ELECTROLYSIS AFTER FORTY YEARS STANDING.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The symptoms of esophageal stricture are pretty generally known to the profession; the symptoms may and very often do exist for some time before the patient or the medical attendant realizes the gravity of the existing condition; they begin with difficulty in swallowing solids, especially meats, and when eating hurriedly; the trouble increases from day to day until only liquids can be swallowed with great difficulty. After the stricture has existed for some time, the space above the point of stricture becomes dilated in the effort to swallow or retain food, and often the patient is led to believe that he has swallowed food when it will suddenly return. If the stricture be low down, the food will remain much longer than if high up; persons suffering from esophageal stricture are always lean and emaciated. The health gradually declines.

In diagnosis of stricture of the esophagus, great care should be taken to determine the cause, for, if cancerous, no treatment can do much for the sufferer; hence in giving a prognosis we should know that we are not dealing with a cancerous obstruction.

A stricture differs from a spasmatic closure; one taking months and sometimes years to develop so as to interfere greatly with the swallowing, while the other, the spasmatic, comes suddenly and disappears in like manner. In the spasmatic form anti-spasmatics relieve; in the other, medication does no good; in the spasmatic closure of the esophagus, a bougie passes to the stomach with but little or no resistance; if it does meet with any resistance, moderate pressure soon overcomes that resistance; with a fibrous or cicatricial stricture it is not so. The bougie can with great difficulty be passed, if at all; paralysis will impede the swallowing and food may become lodged for want of power to swallow and be regurgitated; the passage of an ordinary bougie will readily determine this; in cancerous obstructions, the passage of a small bougie determines the fact by blood being upon the returned bougie and upon food regurgitated. Once satisfied that we have a stricture to deal with, a cure may be assured, the patient being determined and having a reasonable amount of strength to endure a course of electrical treatment, which is not without some pain; a cure requiring from two to six months' treatment by electrical dilators once or twice a week.

In the treatment it is necessary to have a good reliable galvanic apparatus with an evenly graduated rheostat and milliampèremeter; six or eight olive-shaped bulbs of as many different sizes, beginning with a three-eight inch and increases two-eighths each treatment, made preferably of aluminum and fitted with a deep screw thread to a copper wire that is covered with hard rubber insulation to protect the mouth and throat; shaft about sixteen inches in length, sufficiently flexible to admit of some bending, the better to enable one to follow the curves of the throat, yet sufficiently stiff to support some pressure; the bulbs or tips need be a perfect oval or olive, from the largest diameter in both directions, otherwise they are very difficult to withdraw and occasion unnecessary pain.

Miss S., aged 62 years, had suffered from stricture of the esophagus since about 14 years of age, of a fibrous character, occasioned by a hard bit of apple becoming lodged in the throat and remaining there a considerable length of time, setting up inflammation and cicatricial formations at three different points; first just below the cricoid cartilage, another about one and a half or two inches lower, a third very low down. Treatment was begun in September, 1894, using for exploration a small, somewhat flexible bougie which would not pass the first point of stricture. The closure was so complete and had been for upward of twenty-five years that it was impossible to swallow any kind of solids, and liquids were taken with the greatest difficulty, requiring frequently two or three hours to get enough down to sustain her. The saliva would not take its natural course but was overflowing almost continually from the mouth, requiring the use of a handkerchief to absorb it every few minutes; I found it impossible to pass even the small flexible probe. A small three-eighths-inch electrode was tried with the aid of 6 millimeters of current, attaching a small electrode to the negative side (here let me say that it is highly important that you be able to let on the current gradually to avoid the shock and fright), using a carefully devised rheostat (I find the Williams a most excellent one for the work), placing the pad, which is attached to the positive cord, to the back of the neck.

Pass the bulb down to the first stricture, then have an assistant turn on the current gradually until 6 or 8 millimeters is reached, keeping up a moderate pressure for a few minutes, perhaps three to five, when the bulb is sure to pass. A greater amount of current would probably pass the bulb through the stricture sooner, but it would be at the expense of tissue, by reason of the destructive character of a strong current when attached to the negative pole. It is highly important that a dilating bulb be attached to the negative side, since it is the negative pole that softens by chemic action all tissues in contact; hence it is the one to absorb cicatricial formations and certainly has a salutary effect in cases of cicatricial strictures. Treatment was given once a week for a period of six weeks. At the second visit I succeeded in passing a three-eighths-inch bulb through the three strictures, after which time the saliva did not overflow, nor were there any more spasmatic troubles when attempting to force down liquid foods, as had always or nearly always been the case. At each treatment an eighth-inch larger sized bulb was used and passed, endeavoring at each sitting to pass through the strictures slowly, which was greatly interfered with on some occasions owing to the quite severe retching due to the bulb being passed down the throat. We believe it highly important that a dilating electrode remain for some minutes in contact with the false tissues, in order that the electrical current may have time for action; the time in contact has all to do with the success of the treatment. A rapidly passed electrical dilator is no great

improvement over the old method of using dilators simply.

After the sixth week, treatments were given twice a week, after the third month a one-inch bulb or electrode was passed, and I was informed by the patient, a few days after last Thanksgiving dinner, that she had enjoyed the first Thanksgiving dinner in upward of twenty-eight years. She ate freely and without difficulty all semi-solids, even cake, pie and dressings, but no meats were tried, she being fearful of choking if she did. Treatment was continued once in two weeks, continuing the one-inch electrode, and went no higher than 10 milliampères of current; five months from date of commencement of treatment she swallows with little or no difficulty; is still afraid of meat, but it could be taken with perfect safety, if well masticated. We are unable to get the patient to continue the treatment longer, as she feels that her ability to swallow is good enough; however, we would prefer to continue the dilatation with the electrode for fully six months longer at greater intervals. It is well to caution the patient as regards eating solids. Abstaining from solid food has unaccustomed the stomach to such articles, so that serious stomach troubles may follow the indulgence of the ravenous appetite which is likely to follow such a long abstinence from solids.

ELECTRO-THERAPEUTIC TECHNIQUE IN THE TREATMENT OF NEURASTHENIA AND NERVOUS PROSTRATION.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

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The proximate purpose of electrical treatment in the group of conditions known as neurasthenia has been somewhat vaguely understood by different investigators, resulting in quite a variety of methods being employed. Remembering the multiform phases of the affection itself, this is by no means strange, particularly when it is recalled that our knowledge of the pathologic processes underlying it is extremely imperfect and based mainly on deductions from therapeutic empiricism.

Judging from published utterances and from the methods of treatment recommended, it is evident that most of the authorities agree with the original investigator, Beard, in regarding the disease as a perversion of function of the cerebro-spinal system of nerves. Benedikt, Weir Mitchell and Rockwell, for instance, rely almost entirely on general faradic applications, apparently for tonic and revulsive effects, while Morton, Vigoroux and others employ static applications. The currents used by them expend their force on the external moist layers of tissue, having insufficient density for effective penetration to deeper structures, and hence the therapeutic results must be due mainly to their action on the cerebro-spinal nerves and voluntary muscles.

While it is likely that the Beard hypothesis of the nervous origin of neurasthenia adequately explains the secondary mechanism of these pathologic nerve fatigues, it is not so clear that the initial pathologic conditions arise in the cerebro-spinal system in any cases except those suddenly following mental shock or strain. It is extremely probable that deficient innervation of the sympathetic system is a more important factor. But whether primary or secondary, sympathetic nervous insufficiency may be constructively regarded as present in the majority of cases, accompanied by functional derangement of the organs that maintain a pure and healthful condition of the blood. Flowing from this, come auto-intoxications, abnormal organic sensitiveness, etc.

It is by no means denied that faradic currents may not produce effective results of therapeutic value on central organs and nerve structures, but it is clearly evident to the physicist that a sufficient density of either current can not be conveyed to them from the small electrodes and imperfect skin contacts still incorrectly employed by many neurologists in percutaneous applications of electricity. The inch and inch-and-a-half disk electrodes are intended for localizing the current near the periphery, and are therefore properly employed in picking out and exercising groups of muscles in the limbs and trunk, but they are totally inadequate to convey any effective currents into organs situated in the cavities of the body.

To reach and remedy these primary and secondary inactivities and pathologic fatigues of the abdominal nervous system, we néed currents of volume and penetration, preferably galvanic currents; and that they may be carried painlessly to these deep-seated structures, large conducting pads must be used. Fifty to 80 milliampères may be an ordinary application with such pads, and considering the rapid diffusion of the lines of current beneath the electrode, nothing less is likely to convey a sufficient density to the points desired. By the large pads we are also enabled to use the most effectively stimulant faradic current, the primary; the large conducting surfaces minimizing the resistance to a point enabling low pressure and large volume inductions to be transmitted through the skin. The method is monopolar, the indifferent electrode being applied to the back.

An excellent form of electrode for both general and abdominal applications is made of brass wire sewn in a flat spiral to the upper surface of a piece of muslin. The concentric turns of wire are about half an inch apart, the outermost turn ending in a free piece of wire which is coiled about a rheophore tip to make a friction attachment. On the upper side of the muslin, and covering the wire, six layers of absorbent cotton are placed, covered with muslin or linen, the whole being then quilted through to make a compact pad. The size of the indifferent pad should be about ten by fourteen inches. The pad for the active pole is round and about seven inches in diameter. When thoroughly moistened and with surfaces soaped, these electrodes furnish an ideal contact, so elastic as to fit any portion of the body surface, and when used for more than one patient they may be kept aseptic by daily immersion in boiling water.

The maintenance of a thoroughly moist condition of the electrodes is an essential, in transmitting considerable currents through the skin with least resistance and pain, and if the active electrode, particularly, is kept well lathered with a soap like ivory soap, which I find to be the best lather-making soap on the market, as tested by comparative sensations under labile applications, the active electrode may be made to pass freely and almost painlessly over nerve points in a labile manner, evoking as full contractions of muscle groups as the faradic current, with added metabolic stimulation. The same electrode is used for producing muscular contraction in the limbs and for abdominal applications, its exteme elasticity permitting a proper contact with the limb surface without the whole pad touching.

The various procedures in general galvanic stimulation are as follows: the patient, having disrobed,

lies upon a blanket or sheet, both ends of which can be folded over the person. The indifferent pad, lying on a piece of water-proof sheeting, is placed under the small of the back and connected with the positive pole of the battery. The active electrode, connected with the negative pole, is first placed on the abdomen, a lather is raised by moving it about, and 40 or 50 milliampères turned on through the controller. Slow movements are made in the direction of the colon for several minutes, when the galvanic current is turned off and a primary faradic current turned on, also through the controller, and the same movements kept up for an equal time. The arms and legs next require attention in regular order with the galvanic current, the active pad being placed in contact with the limb before turning the current on at the controller (and kept in contact until the limb has been finished and the current turned off), from 15 to 30 milliampères being enough to produce contractions if the pads be passed quickly over the nerve points.

The immediate effect of this treatment varies with the condition of the patient. If the case be one of great prostration it is advisable to have him or her rest awhile afterward until reaction has occurred, as there is apt to be increased weakness for a time in such cases, though even in these the exhilarating effect which always attends the treatment will follow in about an hour. The extremities become warm and there is a sense of greater strength.

Distinct effects upon the liver and kidneys can be traced to the treatment in many cases, the bowels become regular and the volume of urine greater. It is also probable, though not yet demonstrated with precision, that these bulky currents produce functional stimulation of all the nerve centers and organs of the abdomen.

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ELECTRICITY IN THE TREATMENT OF EXOPHTHALMIC GOITRE.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Much has been written on Basedow's disease or Graves, as exophthalmic goitre is often called. Notwithstanding the large amount of literature on the subject since 1835, its etiology and pathology is not definitely understood or settled. Most authors believe that it is a disease of the sympathetic system, having its origin in the cervical branch. Treatment therefore has been more empirical and unsatisfactory. The conclusion is, that exophthalmic goitre ends generally in death, usually caused by complications, of which a general nervous exhaustion and marasmus are prominent. Recovery, however, may occur, even without treatment.

While we have on record, reports of cures, the treatment by therapeutic means has not been satisfactory. It is conceded that some remedies, like iron and digitalis, have allayed symptoms, but they scarcely cured the disease. The ground of therapeutics is so well covered in reports that this paper will not touch on it and will only consider the treatment by electricity, which has promised to do more than medicines. Successes have been reported by different authors who have given applications in different ways, but most agree that galvanism is the proper selection to be used in the disease under consideration.

Galvanization has been used by v. Dusch, who, in one case, after many séances, succeeded in lowering the pulse from 130 to 70, and reduced somewhat the exophthalmus.

Eulenburg galvanized the cervical sympathicus with similar results in 1867, using the negative pole. He also used galvano-puncture without any appreciable result.

M. Meyer[1] reported four cases and Chvostek,[2] who is a pioneer in the observation of this disease, has given much labor, and reports thirteen cases with galvanism in the same manner. These observers report improvements in all cases in which they used galvanism, but do not pronounce decided cures.

A. D. Rockwell[3] has treated cases in a similar manner with galvanism to the sympathicus. He applied the negative pole over the cilio-spinal center above the seventh cervical vertebra, and the positive in the auriculo-maxillary fossa, gradually drawing the positive along the inner border of the sterno-cleido mastoid to its lower extremity. The second step consists of removing the positive pole to the position occupied by the negative, and placing the latter over the solar plexus, using for a minute a greatly increased strength of current.

Galvanization of the sympathicus has also been practiced by Neftel.

Eichorst uses the negative pole high up in the neck and the positive pole between the scapulæ, a current of five to ten cells for two minutes. Then he applies the positive pole upon the cervical spine, the negative over the sympathetic and pneumogastric upon each side for two minutes, from auriculo-maxillary fossa down the inner edge of the sterno-cleido-mastoid to the clavicle.

As the affection probably begins in the medulla, currents have been passed through the back of the head above the spine. Transverse currents have been passed through the goitre. Several friends tell me they have reduced the size of the goitre by placing both poles near the thyroid, but it is evident they ignored other symptoms of the disease.

Erb has tried very mild currents to the eyes with an uncertainty of benefit.

Ziemssen recommends strong galvanic currents, and at the same time contradicts his own advice by urging caution in their use.

Hunter McGuire uses the following galvanic application: Positive cup-shaped electrode containing iodin on cotton over the gland, and the negative pole on the back of the neck.

Frank D. Boyd,[4] of San Antonio, Texas, reports improvement of one case in which he used very judicious treatment of therapeutics and daily galvanic application, but does not state how the galvanism was applied.

There are reports from Vizioli[5] in 1878.

Needles in goitre by electro-puncture have been

[1] M. Meyer: Berl. Medic-Gesellsch, 1871-73.

[2] T. Chvostek: Wien Med. Presse, 1869-1875.

[3] A. D. Rockwell: The electric treatment of exophthalmic goitre. TRANS. AMER. MED. ASSOC. Philadelphia, 1880, XXXI, 177.

[4] Frank D. Boyd: Report of a case of exophthalmic goitre, Medical Record, N. Y., March 30, 1895.

[5] Vizioli: Elettoterapia practica Morgagni, Germajo, p. 69, 1878.

used by Duncan,[6] of Edinburgh, and others with unsatisfactory results. It seems that all surgical applications of electricity as galvano-cautery, electrolysis, cataphoresis, as well as electro-puncture, have given no beneficial or curative results. Even the cataphoresis of Adamkiewicz, an electric anesthetic by diffusion, has given slight and very temporary relief of neuralgia.

From these reports it seems that all operators gave particular attention to the sympathetic nerves, but differed in the selection of the poles to certain regions and the way of application. Some placed the positive pole to a region where others used the negative pole. Some applied the galvanism with the apparent intention to allay only one symptom of the disease, while there are several symptoms to be looked after.

The writer has treated within the last two years three cases of Basedow's disease with apparent good results, which can be called *cured*. All three patients were females.

The first case was a very aggravated one, who was ten years under electric treatment by one of the best authorities and practitioners in electricity. During those years, in which the life of the patient was despaired of, slow progress was made under very careful and judicious treatment. After the treatment had been suspended during a sojourn in the country, symptoms grew worse, and then in the fall of 1893 the patient came under the writer's care. It needed one year's treatment before the patient declared herself well, and she has remained so up to date.

A detailed history of this case is annexed here, from notes and observations by the writer's assistant, as follows:

Case 1.—W. C., age 40, single. She had been under treatment for nearly ten years with an authority in electricity and nervous diseases. During that time she improved considerably, but was not cured. An interruption of treatment was due to a sojourn in the mountains; during which time a relapse took place. In November, 1893, she came under Dr. Newman's care. She then had all the symptoms of exophthalmic goitre; was very anemic, nervous system was unstrung; a great uneasiness, a general nervous prostration, insomnia, sometimes nausea, anxiety, bowels disordered, with dyspeptic symptoms and all symptoms of neurasthenia. The heart action was irregular, pulse varying between 120 to 150, temperature 100. Emaciation prevailed with scarcely any appetite. The thyroid gland was enlarged—the circumference of the neck being thirteen and one-sixteenth inches. The eyes protruded very much, which gave the expression of anxiety to her face. The case was very aggravated, so that her relations were alarmed about her life. Her family history is good, but her father had heart trouble and her mother, who is still alive, has always had symptoms of dyspepsia.

The treatment consisted of galvanism in various ways, three or four times a week. In order to cause an absorption of the new tissue formed behind the eyeball, a medical electrolysis was used. For the negative pole, a solution of chlorid of sodium was applied directly to the eyes, while the positive sponge electrode was held in the hand. Only a very weak current was borne and the electrolysis was caused by the solution—like an eye-bath through which the negative pole acted—as an absorbent. To the enlarged thyroid gland the negative pole was also applied in the form of a sponge pad, and in this the result expected was the diminishing of the size of the goitre by the chemic action of electrolysis. The application to the nervous system, in which the sympathetic was included, was varied according to indications and the solar plexus received its share of attention. One of the applications consisted of a helmet to the head, while the other pole was placed over the solar plexus. This helmet was made of strips of German silver fastened to a circle, which corresponded to the circumference of the head. To have an even action to the head the hair was wet with water, and a wet felt cap placed between the head and the helmet. The result of this treatment was satisfactory in every respect and all symptoms of the disease improved.

May 1, 1894. Improvement in every respect. Patient felt more rested, the unpleasant nervous excitement was calmed, and sleep procured. Heart had a more steady action; pulse was reduced and the measurement around the neck was twelve and seven-sixteenths inches in circumference, five-eighths of an inch reduction. Patient left in July, 1894, for a sojourn in the mountains, which interrupted the treatment, *pro tem.* Sept. 6, 1894. Slight relapse has occurred while being without treatment. The thyroid gland has increased, and the measurement is twelve and five-eighths inches around the neck. September 20. Treatment in the same manner as before, with galvanism, has made rapid improvement. Heart is more regular; pulse is reduced; eyes still prominent. October 2. Thyroid gland is reduced so that the circumference of the neck measured twelve and one-half inches. November 30. Thyroid still lessened—measurement twelve and seven-sixteenths inches. Treatment continued; no medicine given, only galvanic applications. March 22, 1895. Neck's circumference normal size—twelve and three-eighths inches—the patient when in perfect health wears a twelve and one-half inch collar. The eyes have resumed a natural look, without having any protuberance. Heart's action is normal; pulse 76; temperature 98.5; all nervous symptoms subsided; good natural sleep procured. Patient considers herself well; takes part in all the pleasures of life and enjoys all in an active way.

Case 2.—Had many symptoms like the first, but was not as aggravated. The treatment was similar and has been pursued for nine months. The patient, a female, 30 years old, has improved so much that a cure may be pronounced, but is still under observation with galvanic applications at irregular intervals.

Case 3.—The third patient was a young lady who sang a principal part in an opera company. A question arises here if heredity has an influence, as her mother died of Basedow's disease. This patient had an exophthalmic goitre which was correctly diagnosticated, and different physicians treated her with medicines for over two years, during which time she grew gradually worse, until at last, at a performance after reëntering the wings, she fell prostrated and unconscious, ending her operatic career for a time. The patient came under the writer's treatment in December, 1894. The electrical treatment was carefully but vigorously pursued; on an average, five séances per week were held. In less than four months this very aggravated case was entirely cured. All symptoms have disappeared, the constitution improved, weight increased, and features restored. Patient considers herself well and is ready to enter another opera company. (Since the above has been written, patient has appeared on the stage, and feels very well.)

In this case were complications of severe oöphoritis and endocervicitis. There was hemorrhage from the uterine cavity which increased on the slightest touch, and also a profuse mucous discharge. The region of the ovary, in fact, the whole hypogastrium was painful, and the sensitiveness was increased on any pressure. These uterine troubles have been treated locally at intervals. The only therapeutic agent given this patient has been peptonate of iron to improve the quality of her blood on account of the anemic state, which was very marked. The iron was given when the nervous symptoms were improved, and then it acted well.

The electric treatment of this case consisted of galvanism, given in different ways and places. The galvanic treatment was assisted by the spray of the static machine. The spray was given twice a week very cautiously over the spine, head and over the sensitive parts of the ovaries with very good effect.

The history of this case has been written up by the patient herself, in which is embodied notes about her mother, who died of Basedow's disease. The interest is in the question of heredity. The diagnosis in both cases of mother and daughter had been made by several eminent physicians with an unfavorable prognosis. These notes are here annexed:

[6] Duncan: Brit. Medic. Jour., Nov. 3, 1888, p. 986.

History of the Third Case: The patient, Z. R., writes as follows:

NEW YORK, April 6, 1895.

At the age of 16 I had just returned from Europe, it being a pleasure trip only. After being home but a short time I was taken seriously ill. The palpitation of my heart troubled me dreadfully, and occasionally a spasmodic pain of the heart which was severe while it lasted. My feet began to swell and I was so prostrated, physically, that it was impossible to go the shortest distance without great exertion and fatigue. Dr. Loomis, the great authority on lung and heart diseases, pronounced me incurable and warned my mother not to allow me to go anywhere without an escort, as I was liable to drop dead at any moment. My mother shortly afterward was advised to put me under the care of Dr. Louis Conrad. He said I had a defect in the heart which was incurable, but if I took care of myself and led a quiet life that it would not bother me. He also informed my mother that I was subject to a disease called "chlorosis," or "poverty of the blood." Nevertheless, under his treatment I survived, not being very strong at any time—naturally delicate. About three years later my mother, having enjoyed good health up to the date making her forty-eighth year, began to complain; being of a bright, strong temperament and was subject to very severe, nervous headaches.

I wish to say that she was a great business woman, having as many as 300 hands under her employ at one time, which made a great deal of brain work for her, but at the time of which I speak, from that period, she seemed to fail gradually. She grew more excitable, easily fatigued, excessively nervous, gave way to temper at the slightest provocation, which would terminate in a severe nervous headache, and the only cure was perfect quiet in her room in complete darkness. A year later, she complained of increased fatigue, but I presume the Basedow's disease was gaining more hold on her system. Her heart beat so tumultuously that she felt the pulsation in her throat, but her neck did not increase very much in circumference. The inflammation of the eyelids and bulging of the eyeballs—this last being made more prominent by a staring expression. Her knees gave way, but being of a determined disposition she would not go to bed.

Shortly afterward, I went away on business. My mother became annoyed at a servant, gave way to a fit of temper, and the excitement was too much for her. She fainted, and from that day to the day of her death was confined to her bed. As she had previously used up her strength worrying about domestic affairs, business was a thing of the past.

From that time her heart beat faster and more irregular; marked pulsation was felt in the throat, ends of fingers, in fact, all over her body. Under the optician's examination there was found a pulsation in the eye. She had a hacking cough, at times violent, especially after eating, which would make it almost impossible for her to keep any food on her stomach, but that did not surprise me as each doctor would give her a new dose of medicine, and between the various ones and the medicine that would be given after each consultation, I do not wonder at her digestion being ruined.

Mother suffered all her life with constipation, the treatment of which she neglected. The doctors gave her some medicine which made her bowels so loose that it made her very weak. Three weeks before she died I had to take her to a hospital, one of the best in the city. The doctors there gave her champagne, and it made her delirious. After one of the delirious attacks she was put to bed by four doctors. They told me she asked after me, required my presence, turned over and died. She was 50 years old.

I was sleeping, and as I was exhausted with the care and worry about her; I was not called until too late. She died of exhaustion and with a pulse of 180. I have always had a doubt in my mind as to her death being easy—I suppose the doctors wanted to spare my feelings, but the truth would have been preferable. I nursed and attended her through her entire sickness—the serious period being about seven months. During the above period she lost flesh rapidly and was very much emaciated.

A few months after my mother's death I was married. My married life was a failure from a domestic and physical standpoint. My husband abused me, which run my health down dreadfully, and combined with the shock of my mother's death, which I will never survive, I became a bunch of nerves.

I have been doctoring for two and a half years and no relief. In June I shall have been married three years, and will be 25 years old the 30th of next October.

The doctors have not helped me one particle. All they did was to fill me with opiates and chloral which almost killed me—in fact, I was in a state of complete collapse. Four months ago I called in Dr. Newman—having all the symptoms of Basedow's disease previously mentioned: nervousness, sleeplessness, melancholia, loss of appetite, irregular action of the heart, very excitable irritable temper, general fatigue at the slightest exercise, a feeling of numbness in the limbs, swollen feet and puffing out of the flesh in which the finger could make an impresion. After four months of galvanic electricity, I feel better than I have for years and consider myself well enough to discontinue treatment. Occasional application from the static machine often relieved me of a nervous headache; in fact, relieved a pain in the spinal column which was for a period continuous and very painful.

REPORTS OF CASES.

On record are reports of cures by medicines, electricity, both combined, and even spontaneous cures. These results, however, are exceptions, and the rule in the treatment of exophthalmic goitre is that they are failures, often ending in death. It is also conceded by most authors that electricity, in this disease, gives better results than medicines. This, however, does not prove that electricity in any form, and even given by specialists, always cures.

There are failures and unsatisfactory results reported. The writer has made diligent inquiries among reliable specialists in electricity and been told of cures, benefits, as also of indifferent and unsatisfactory results and even failures. Such results must be expected, as the *modus operandi* of electricity has been conducted differently by the operators, and it seems even on entirely opposite plans.

TREATMENT.

Electrical specialists in the treatment of exophthalmic goitre have mostly given galvanism to the sympathetic, and in this they all agree. They differ, however, in the selection of the poles, the direction of the current, the size of the electrodes, the duration of the séance and the intervals.

It seems, further, a mistake to treat solely the sympathetic system and to overlook other important points of this disease. Most European authorities give the electric applications too short, being from one to two minutes' duration, while in America such séances are prolonged to about twenty minutes, which tires the patient and gives too great stimulation. The question arises, if it would not give better results to arrange the electric applications more rationally to symptoms and complications, as with our present knowledge neither etiology nor pathology of this disease is settled.

PROMINENT SYMPTOMS.

Beside complications and natural consequences, exophthalmic goitre has three prominent symptoms to which the treatment should be directed. These are:

(*a.*) Irregular heart action with all kinds of nervous symptoms.

(*b.*) Enlargement of the thyroid gland.

(*c.*) Protrusion of the eyeballs.

Complications are anemia, emaciation, insomnia, uterine diseases, irritability, edema, fainting spells, etc.

The Indications for Treatment are: (*a*), to reduce the pulse, regulate the heart action, produce rest and sleep and allay the nervous symptoms. Beside the sympathetic system it is necessary to regulate and treat the pneumogastric and vagus; (*b*), to diminish

the size of the thyroid gland; (*c*), to remove the plastic new formations behind the eyeballs.

The Treatment, therefore, would be:

1. Galvanism to the sympathicus, vagus and pneumogastric, in such form as to reduce the pulse and stimulate the heart's action. In other diseases, galvanism quiets to such a degree that patients fall asleep while the application is given.

The Strength of the Current must be regulated according to the toleration of the patient in every case. The operator must exercise great care in slowly increasing the electro-motive force of the current, till the exact amperage is found, and every step of increase and decrease must be made with care and without any accidental shake or jerks of the current. The exact measure in milliamperes can not be advised and depends entirely on the sensation in each individual case. Some patients may be so irritable that even 2 milliamperes may be too much, while others can endure 20 or even 30. It is also essential to regulate the strength of the current in the same patient according to the region to be galvanized, to the size of the electrodes and the resistance between the two poles.

The *Static Electricity* will assist to regulate the vascular circulation, allay nervous irritation, creating a sedative to the heart and a more refreshing sleep.

2. The thyroid gland will be reduced with almost a certainty by the negative pole of the galvanic battery. Some report good results by applying both poles near the gland, one on each side. While this may have result the method is harsh and not rational. Surgical means have not been successful.

3. The protrusion of the eyeballs can only be cured by diminishing the new formations of tissues, grown behind the eyeballs, by which the eyes have been pushed forward. This can be done by the use of the negative pole to the eyes, which acts like an electrolysis absorbing the foreign tissues. The complications have to be treated according to indications.

The static electricity is here recommended only as an assistant and must be given with care. Sparks are contra-indicated, as they are too severe and will create often more nervousness and even pain. Breeze or spray will act well, allaying pain and regulating the circulation.

There Should be Avoided: Too strong currents, too long séances, which tire the patient and over-stimulate internal electrolysis, and surgical electricity. The faradic current has been used and recommended, given with certain precautions, but it seems it is contra-indicated, as a severe measure, which over-stimulates and disturbs more the diseased nerves.

With regard to general rules, avoid also excitement, over-exertion, stimulants, strong tea and coffee. It is evident that the treatment, and especially the application of the electricity, must be intrusted to an expert, and that the family battery for self-use (or abuse) is entirely out of the question.

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ELECTRICITY IN THE TREATMENT OF OCULAR NEURALGIAS.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7–10, 1895.

BY HORACE M. STARKEY, M.D.

CHICAGO.

It is with much diffidence that the writer responds to the invitation of your chairman to present a paper to this Section; for if there is any class of men for whom he has the most profound respect and before whom he is inclined to stand in silent awe it is those who are solving the complex problems presented in the study of the construction, functions and diseases of the nervous system. He is, however, the more willing to present a very simple and practical fragment to this symposium, because he is not aware that much has been written on this particular phase of the subject, and because he finds no reference to it in the very able paper on "Electro-Therapeutics of Diseases of the Eye," read before the last meeting of the American Electro-Therapeutic Association, by Dr. L. A. W. Alleman, of Brooklyn.

The intimate relation between eye-strain and disease of the nervous system is so well known as not to require mention. Many persons with weak and unstable nervous system are kept for years in a condition of invalidism, and suffering because of a constant excess of expenditure of nervous energy in some particular direction. Probably the most frequent source of such excess of expenditure is to be found in the eye and its appendages. It is the duty of the ophthalmologist to seek out and endeavor to correct these various sources of irritation, whether due to faulty shape of the eyeball, to irregular action of the eye muscles, to defective nerve impulses or to inflammatory diseases. Many patients are found in whom an error of refraction, or difficulty in maintaining the eyes in position for single binocular vision, or weakness of the external and internal muscles of the eye, or all these combined, have been for years the cause and source of headaches and pains in and about the eyes. Most of these cases are relieved with more or less promptness by removing the cause. A certain number of them, however, are not so relieved. The long-continued over-stimulation and irritation of the nerves seem to have induced a hypersensitive condition and a habit, as it were, so that, after the most careful correction of refraction and of muscular balance the neuralgia continues.

Many of these persons just described, whose condition is truly pitiable, appear to be relieved by the systematic and careful use of electricity. But while many are so relieved, some unfortunately are not, and continue to have almost constant pain, more severe on use of the eyes, notwithstanding all that we can do for them. As we are more careful and exact in diagnosis, however, the number of such unrelieved cases becomes smaller.

There are two classes of the patients mentioned above, to whom electricity may be advantageously

applied: 1, those with weak extrinsic muscles who may receive the primary faradic current for its direct effect upon those muscles; and 2, those in whom neuralgia persists after removal of the exciting cause, and who should receive the galvanic or the secondary faradic current.

A brief description of the method of application may be serviceable. First, as to time. The time required for a treatment is from two to eight minutes, with a probable average of four or five minutes, depending upon individual peculiarities. We probably all begin any electrical treatment with a minimum of time and current, and then increase both as we find indications for so doing. The indifferent electrode of absorbent cotton, three inches in diameter, is held by the patient to the mastoid, and neck just below the mastoid on one side the first half of the application, and on the other side the last half. In applying the faradic current a double-eye electrode may be used over the eyes, but the operator's hand makes altogether the best electrode, because the fingers can be used to single out the different muscles and convey the current more directly to them. The current employed should be mild, so as to produce a sense of tingling with little or no actual pain. Unfortunately we have as yet no practical means of measuring the faradic current. For the persistent neuralgias the secondary faradic current should, from theoretical grounds, be most useful, but practically, the weakest application of this current about the eyelids is often so painful that it will not be tolerated. The sinusoidal current would probably be better borne. Very decided and immediate relief is frequently obtained from the galvanic current with the anode as the active pole. In this application, the time and the position of the indifferent electrode are as stated above, while the active positive electrode, which is preferably double, is applied by a gentle massage motion to the lids, cheeks, brows and temples. The amount of current required is but from 2 to 5 milliampères, though in some cases even this very small current is too great for comfortable use. The current is usually very soothing and grateful, and patients frequently express surprise at the rapidity with which the pain is relieved and at the calm content and drowsiness that steals over them. This effect is very likely due in part to the action of the current on the cervical sympathetic. The duration of relief from pain is quite variable; it may at first be but a few minutes and it may continue for several hours. Usually, where benefit is to be secured, the time of relief increases as the treatment progresses, so that in a case where the first application gave relief for one hour, the third may give relief for two hours, and so on, until the pain is absent from one day to another, when the time between treatments may be lengthened and ultimately the pain is entirely relieved. A few cases were briefly summarized, but the limit of papers in this symposium will not permit their introduction.

NOTE.—A time limit of four minutes was placed upon these papers.

DISCUSSION ON PAPERS READ BY DRS. WATSON, MASSEY, NEWMAN, AND STARKEY.

DR. WILLIAM J. HERDMAN, of Ann Arbor, Mich.—I was sorry that Dr. Watson did not more specifically state the nature of the esophageal strictures with which he had been dealing. His experience has certainly been very satisfactory. The procedure he adopted is that which I have generally found, from examining the literature of the subject, to be most likely to result satisfactorily, that is, the gradual dilatation of the stricture with the assistance of the negative electrolytic action. What I believe to be the fact as demonstrated by laboratory tests on living tissues with negative electrolysis, is that by a cataphoresis we have drawn to the spot, when the negative pole comes in contact with the issue, an increased fluidity. Not only is the fluidity increased, but at the same time we have an alkalinity produced by negative electrolysis. You have there the conditions for gradual disintegration of fibrous tissue. Where you have a purely spasmodic stricture, as possibly was the case in some of the instances mentioned this morning, it is overcome by action through the nervous system. By passing the current from above downward and producing the natural order of esophageal contraction, you habituate that part of the esophagus to pursue the normal peristaltic action. Peristalsis in the esophagus is reversed in a good many of these cases and much of the difficulty arises from some part contracting below while the upper part is dilating; in other words an irregular distribution of nerve impulse to the muscular tissue occurs, and you can gradually overcome that by the electric current. It matters not in that case whether it is the positive or negative pole. But when you have fibrous tissue to deal with, you have a pathologic barrier which is not spasmodic, but genuine and real to overcome, and there electrolytic action by means of a negative pole is essential. To my mind it is the only rational procedure we have. A surgical procedure leaves only another cicatricial band. By the cataphoric action of the electricity you increase the fluidity of the part and this fluidity distends the fibers in the cicatrix; then, by means of the alkalies which are drawn there by electrolytic action the tissues are dissolved. You are practically using an alkalin caustic. This is the same process that Dr. Newman has adopted for the removal of cicatricial bands in the urethra. It will serve the same purpose for the ophthalmologist who attempts to dilate a stricture of the nasal duct, and it will dissolve cicatricial bands in the neck of the uterus. I have used this method over and over again in esophageal stricture and frequently in urethral stricture. It is a physical process which can be demonstrated at any time upon living tissue in the lower animals.

There is one thing that was said by the author of that paper which causes me to doubt the efficacy of his method. He makes use of aluminum electrodes. Now aluminum is the only metal which is dissolved by the alkalies or by use as the negative pole, and his electrode is not only dissolved away in this manner, but there is a question as to whether he does not get an irritating effect from the sodium aluminate and the potassium aluminate which is formed at the point. That these substances are formed at the negative electrode during electrolytic action when aluminum is the material employed, I am quite satisfied from tests. I have had made for me some sodium and potassium aluminate in the pure state, with the view of testing its action on the tissues. It is very acrid to the taste, but I have not as yet investigated its action on living tissue to determine to what extent it is irritating. There is no question that certain substances are carried into the body by means of the negative electrode. There are those who hold that cataphoresis is carried on solely at the positive pole, but there is a cathodal diffusion as well. It is just as well to make use of steel electrodes as those of aluminum. Dr. Newman has taken up the interesting and perplexing subject of exophthalmic goitre. This one fact has come out from all recent methods of treatment advised for exophthalmic goitre, that galvanism is an indispensable element in the treatment. I have had occasion to look over the literature of exophthalmic goitre during the past eight or ten years pretty thoroughly, and during that period I do not think there is an author speaking of it or a writer writing concerning it, who does not put galvanism in a prominent place in the method of treatment; but it is amusing to see what a variety of methods they have employed for applying galvanism. Some make use of the negative pole over the thyroid, some the positive. Some treat the cervical sympathetic, putting one electrode underneath the ear and the other on the sternum, with a view to bring as much of the cervical sympathetic under the influence of the current as possible. Others adopt a transverse method. There is very little that can be inferred from this, as to what value or what particular effect it is that galvanism produces in this treatment. Every one has this idea as to the pathology of exophthalmic goitre, and I have had mine for a good many years. The notion of the pathology differs almost as much as the persons speaking of it, each one seeming to have a different conception. This only indicates to us how little we know about it as yet. I have now had twenty-three cases of exophthalmic goitre;

every one of these, although some of them seemed to be desperate at the outstart, are well to-day. The worst case I can recollect is that of a woman in Kansas who was bedridden and very extensively edematous. Her respirations were 40 to 45 per second and her pulse rate was 140. She was unable to bear a teaspoonful of any nourishment on her stomach. That woman is perfectly well. Others have not been so serious in their conditions, but some of them were certainly very low. Galvanism was in all of these a very prominent part of the treatment. I would not regard galvanism of itself as the only method to be employed; in fact, I regard it as absolutely essential to make use of accessory measures, such as cardiac stimulants and measures for promoting nutrition. My experience may not be different from others, because I think other measures of treatment of this malady are more successful than those of a few decades ago. I am presumptuous enough to regard this disease as always curable.

As to static electricity in exophthalmic goitre, I think its effects are good. It acts as a vasomotor stimulant and assists in that way. I was extremely interested in the paper read by Dr. Kellogg upon the physiologic effects of the sinusoidal current. In the treatment of that subject, Dr. Kellogg has made considerable progress toward accuracy in the use of electricity. D'Arsonville, some few years ago, made the statement that the physiologic action of electricity depended upon the "curve of excitation" produced by the instrument employed. We have in static electricity an alternating current of extreme rapidity. Billions of alternations take place in the course of a second during the passage of the spark. The current, however, is very minute in quantity. The electro-motive force of the current is enormous; it is sometimes millions of volts. The amount of electro-motive force required to cross six or seven inches of dry air would need to be enormous. The effect produced physiologically by such an electro-motive force, with a very small current, but a current which is rapidly alternating, must differ much from that of an induction coil which is alternating perhaps only two or three hundred times in a second, where the electro-motive force does not exceed 30 volts and where the current as compared with the static machine is greatly in excess. The static machine may have only .1 of a milliampère of current, where the induction coil may have 10 milliampères or more. All forms of electric apparatus differ in the character of the curve which is produced. D'Arsonville called that the "characteristic of excitation," and the "characteristic of excitation" has its relationship to physiologic action. Dr. Kellogg brought out this fact in regard to the action of the sinusoidal current. This, he says, has extreme penetrating power, so that its action upon the muscular system is very decided; in other words, that it does not act upon the sensory nerves to any extent, but it does act markedly upon the muscular tissues, and for that reason serves a great variety of purposes that no other current serves so well. I think the reason for this lies in its peculiar "characteristic of excitation." In other words, that the sensory nerve terminals do not respond to an alternation of that character while muscular tissue does. It is not probably due so much to the penetrating power, as to the character of response which a sensory nerve is capable of making. He finds, for instance, that this current will produce no sensation at the temple, whereas there will be sensations of light excited in the optic nerve or in the retina. Now we know there is a great deal of difference in sensitiveness between the retina and the skin, and the reason it excites the retina when it does not in any way cause sensation on the skin is not, in my opinion, due to the penetrating powers but to the fact that the nerve distribution in the skin differs in the manner in which it responds to external excitations from that which we find in the retina. The retina is capable of responding to light, which, as we all know, has billions of vibrations per second. I believe that in our investigations concerning electric action we will eventually have for one purpose one form of current, and for another purpose a different form, according as the tissues respond to one or the other. We all know that we can get such a rapid vibration and high voltage of current that it can be passed through the system without our knowing anything about it. In the atmosphere of Tesla's laboratory you have vibrations passing through you and at such voltage which, if slower and lower, would kill instantly, but being so rapid they have no appreciable influence on the economy. In our therapeutic applications of these various forms of electricity, we must eventually know what is the "characteristic of excitation" of every machine we make use of, and in that way we will get a scientific application of electricity that will have its physiologic and therapeutic counterpart, and I think toward that result we are rapidly tending.

DR. G. BETTON MASSEY, of Philadelphia—One point in Dr. Herdman's remarks I might take exception to, in regard to the excitation of the sense of vision by the sinusoidal current. Heretofore the sense of vision has been excited only by the galvanic current and not by the faradic. It has occurred to me that the reason why the sinusoidal current causes a response by the retina is on account of its larger amperage. I can not say what the amperage of this machine is; it is somewhat difficult to find out as it is an alternating current. It is well known that it is not a direct excitation that necessarily causes the sense of light, but a reflex one. That was a matter under considerable discussion some years ago, and I myself, in 1885, contributed to the American Neurological Association the report of a case of anesthesia in which the absence of the galvanic test was marked in an area of anesthesia about the size of a dollar over one eye; no matter how strong the galvanic current we could localize in that point, although within an inch and a half of the retina itself. Yet, anywhere outside of that area, galvanic currents with interruptions would produce both taste and sight. One of the uses of the sinusoidal current will be the power of giving rapid alternations of practically slight galvanic currents of such regularity and gradation as to cause muscular contraction without pain, since the variation is not quite acute enough or irregular enough to cause sensation.

DR. HUGH T. PATRICK, of Chicago—I would like to differ with Dr. Herdman when he says the galvanic current is an indispensable means of treatment in Graves' disease. I would like to make the point that in many different varieties of treatment of this disease, it improves and pursues a favorable course, although not generally to complete recovery. I happen to have seen in the last three or four years, about sixty cases of Graves' disease. These were seen under the care of various observers and were consequently under various methods of treatment; some of them purely hydrotherapeutic, some purely faradic, some purely galvanic, some purely dietetic, some purely rest treatment, and so on. I do not think that among all these cases I saw one which was treated for a length of time, sufficient to judge of the treatment, that did not improve. The only thing which I saw in common in the treatment was repose, rest and general hygienic measures. Now I beg leave to offer the opinion that the rest treatment and general treatment alone may give exceedingly favorable results in the treatment of this affection, equal to any that have been produced by the galvanic current; and I do not think that our enthusiasm for electrical treatment should carry us so far as to say that galvanism is indispensable in the treatment of Graves' disease.

DR. GEORGE J. PRESTON, of Baltimore—One little point concerning exophthalmic goitre, and that is the immense loss of electrical resistance. That was called to my attention some ten years ago by Vigarow, who was, I think, the first observer of the phenomenon, that in cases of this disease there was practically no electrical resistance. In the somewhat limited experience I have had in such cases, I have been able to confirm this, that the electrical resistance is practically *nil*. I have been quite at a loss for any satisfactory explanation of this point. I asked my friend, William J. Morton of New York, an authority on such matters, and he said that he thought it was due largely to excessive moisture of the skin. My own experience would not bear that out. There is evidently some special susceptibility to the negative current in these cases. It is a noteworthy fact that when the thyroid has been removed, surgically, the same loss of electrical resistance results, and this brings out a curious similarity between the removal of the thyroid surgically and exophthalmic goitre, which seems to bear some remote relation to the thyroid gland.

DR. G. B. MASSEY—Can the Doctor tell us what the resistance was in these cases? It is startling to hear that there is no resistance; even a copper wire has resistance.

DR. PRESTON—I did not expect to be taken literally when I said that the resistance was lost. I frequently measured the resistance and found it down as low as about 500 ohms and in one case as low as 300 ohms, using an electrode about 4 cm. in diameter. I used an electro-motive force of perhaps 20 to 30 milliampères. I used an ordinary Wait & Bartlett machine. Normal cases under like conditions would give a resistance of about 2,000 ohms.

DR. CHAS. G. HILL, of Baltimore—Speaking generally of electro-therapy, I wish to say that we have much to learn in that line, notwithstanding the rapid advancement recently made, as evidenced by the excellent scientific papers read before this Section. I recall many cases of the application of electricity for the reduction of the thyroid in exoph-

thalmic goitre, and some cases would melt away like magic while in others there was practically no effect. I have applied electricity in other lines, in surgery for instance, and sometimes with very good results. I recall one case of a small fibroid beneath the skin which would have caused no inconvenience except for the pressure upon it of the dress sleeve. The patient, a nervous woman, objected to the knife. I applied the constant current, not expecting much from it, and was very much surprised in two or three applications to find that the tumor disappeared entirely. There is another point which was not brought out to-day, and that is one of the peculiar effects of the electrical current in the production of ozone in the tissues. We never apply an electrical current, constant or faradic, that we do not develop in the tissues a certain amount of ozone, and probably it is through this agent that we often get the effects which are realized by the application of the current.

Dr. Theodore Diller, of Pittsburg—Regarding the lessened resistance in Graves' disease, it seems to me that the explanation offered is a rather reasonable one. The increased moisture of the skin, together with the capillary dilatation would seem to me to be sufficient to account for the phenomenon. This opens up another thought, which is, that this lessened resistance being so constantly present in Graves' disease may be useful as a diagnostic feature. For instance, I have on two occasions seen cases of tachycardia. Very often this increased heart's action is the first symptom of Graves' disease, and I quite agree with Dr. Herdman that it is the most constant symptom. In cases of tachycardia, therefore, it would be well to measure the resistance, and it might lead to important indications. I would like also to record my experience with the constant current in Graves' disease. It has been exceptionally unsatisfactory. I have never seen it do much good. Only recently, after a six weeks' course of treatment, the patient coming to my office, there was no good result whatever. The patient was then put upon some medication, and three or four weeks later was sent to a hospital and remained in bed for six weeks without medicine of any kind. Under the rest treatment there was marked improvement. I believe that of all forms of treatment known to me that rest is the most efficacious. I would like to ask these gentlemen who have recorded observations, in what condition the patients were who were receiving galvanism; whether they were in bed or going about.

Dr. Hugh T. Patrick—I am sorry that my personal experience can not contribute to our knowledge of the decrease in resistance to the electrical current. In most of the cases in which it was tested, there was undoubted diminution. The explanations which are thus far produced hold good for some but not for all of the cases. Regarding the conditions of the patients I saw treated, most of them were able to be about, but some of them were in bed. The worst case I saw was that of a woman whom I observed almost constantly during the better part of a year. She was better and worse, better and worse under galvanic treatment, and finally she was decidedly worse. She was then put into a hospital and was there so bad that she could not turn over in bed. She had hallucinations, her chest expansion was about three-fourths of an inch and her pulse at times could not be felt at the wrist. We all expected her death. She went home, however, and within six weeks after leaving the hospital had gained almost fifty pounds in weight under practically no treatment at all but rest at home, whereas before she had grown worse at home under galvanic treatment.

OBSERVATIONS ON SOME CHARACTERISTICS AND RELATIONS OF THE DYNAMIC AND STATIC FORMS OF ELECTRICITY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. D. ROCKWELL, M.D.
NEW YORK.

The more thoroughly one studies electro-therapeutics in all its relations, medical and surgical, the clearer it becomes that the real scientific basis for the use of electricity in medicine and surgery is found in electro-physics more than in electro-physiology; and therefore in studying the therapeutic characteristics of electricity, and the relations of its various forms to each other, we can not be too well grounded in the laws of electro-physics.

One of the most perplexing questions to the tyro in electro-therapeutics relates to the differential indications for its use, but if one is well equipped with a knowledge of physics, with a well directed clinical experience, the various special problems that arise in practice, whether of a theoretical or a practical character, very quickly resolve themselves. Often in discussing the subject with members of the profession more or less interested in electro-therapeutics, I have noticed a manifest tendency to use one form to the exclusion of the others, and an especial tendency to discard the faradic current, in favor either of the galvanic or static electricity.

The contention is, on the one hand, that its quantity is so small as compared with the current direct from the cells, that to mechanical influences alone must be attributed whatever beneficial effects follow its use; and, on the other, that its nutritional effects are inferior to the static form of electricity because of the tremendous electro-motive force or voltage of the latter. Broadly speaking, seeing that static electricity is all voltage with little amperage or quantity, and that the galvanic current is all amperage with little voltage—while the faradic current occupies a position between the two—there are in these conclusions a manifest contradiction. The truth is that each has, in some respects, a special field of its own, and no one of the manifestations of electricity can be dispensed with, if one expects to get all the results that it is capable of giving. In regard to the faradic current therefore, it has been urged that other mechanical methods—massage, tapping, and contrivances for producing rapid vibratory movements are equally serviceable. Those, however, who hold these views have but a very incorrect appreciation of the true action of the faradic current, and have certainly fallen far short of completeness in their practical experience with it.

Many years ago, when I first began to use electricity in practice, my efforts were of necessity confined to the faradic current. Galvanic apparatus was not obtainable, and whenever it was desired to use the galvanic current one had to resort to the inconvenient and ill-smelling voltaic pile. This necessity was not altogether without its advantages, however, since it, for the time being, relieved me of the somewhat perplexing problem of current differentiation and enabled me to give undivided attention to the faradic current. One of the most common observations as to the effects of a thorough general application was a relief of muscular tire after prolonged activity, and an increase in the flexibility of limbs that had become sore and stiff after the rest following excessive and unaccustomed muscular exertion. One does not have to search far for a rational explanation of these well-known effects of electricity, although at the time a general want of appreciation of the physical characteristics of the current gave to most of the explanations offered a fanciful rather than a scientific and practical basis.

Mechanical influences were undoubtedly predominant, not, however, as manifested by vigorous muscular contraction, but through molecular agitation, sufficient to give passive exercise to both the superficial and the deeper lying tissue. In these cases we get, associated with cell exhaustion, a condition of circulatory sluggishness with a deposit of the toxic

products of metabolism, conditions which are well adapted to appreciate the corrective and exhilarating effects of molecular agitation.

It is on the selfsame principle that the faradic current is now applied with such admirable results in chronic congestions and indurations of the uterus and affords such instantaneous relief in some of the simple non-mechanical varieties of dysmenorrhea. The blood-flow in the over-congested organ is accelerated. A sort of circulatory drainage is established and a healthy local action more quickly and effectually brought about than by any known method. If, therefore, we obtain from the faradic current effects that were simply mechanical and nothing more, we would still find it a very good thing to aid us in our therapeutic efforts. We do not get from it, to be sure, any marked chemic or endosmotic or exosmotic effects, but we do get physiologic effects of the most pronounced character; and as the physiologic effects of electricity take place in living tissue alone, while all other effects are observed in the dead as well as in the living—in inorganic as well as organic substances—these physiologic effects are of chief concern to us as physicians in the consideration of the nutritional effects of electricity. We find, then, that this current accelerates the circulation, influences the secretory and excretory processes of the body and hastens absorption. To what extent these physiologic effects are of mechanical origin no one, I am sure, is yet quite prepared to say, but the results which follow this method of treatment render it reasonably certain that we get upon the nerve structure itself, together with medical effects, influences of an entirely different character.

The claims made as to the advances in electrotherapeutics during the past few years are large, perhaps too large, but yet in some directions—especially in the realm of gynecology—much has been accomplished. Interstitial electrolysis, as suggested by Gautier, is a method of considerable interest, and although it may not fulfill the expectations of its author, yet some promising results have been reported and more may be hoped for. By this method the chemic action of the positive pole is utilized, not only for its effects upon the tissue itself, but upon the metal electrodes, mainly copper or zinc, that are applied directly to, or inserted into, the diseased part. In this way, new salts are formed and deposited in the tissues, oxychlorid of zinc when zinc, and oxychlorid of copper, when copper electrodes are used. It is the cataphoric property of the current, however, which carries or forces these salts, the product of electrolytic action, through the surrounding tissues to a greater or less depth according to the strength of current and treatment. The technique of this treatment can not be entered into here, further than to say that the positive pole is always the active pole and that the necessary current strength is from 20 to 40 milliampères. The best results seem to have been obtained in diseases of the endometrium, although the method is applicable to various other diseases of the uterus and appendages.

Another advance in the utilization of the galvanic current is by what may be termed the depolarizing method. In 1892 I described the depolarizing electrode, with experimental observations, and in 1893 some suggestive clinical results following the use of the method in various forms of disease. Briefly stated, the idea is to altogether eliminate either one or the other pole, according to the indications for treatment. By using an electrode with resistance in ohms equal to or greater than the resistance offered by that portion of the body between the electrodes, the neutral point is thrown outside the body, which may at will be brought under the influence alone of either the negative or positive pole.

It would not have occurred to me to consider the possibility of any special therapeutic effect being associated with this simple and well-known fact of electro-physics, had I not been led to make some experiments that revealed a number of exceedingly interesting and suggestive phenomena—and quite new so far as I can find out—in the realms of electro-physiologic experimentation.

If two needles connected with either pole of a galvanic battery are thrust into a piece of raw beef and a current of sufficient strength allowed to pass for a few minutes, litmus paper applied at the point of entrance of the positive pole shows the regulation acid reaction and at the negative pole an alkalin reaction. If now we intercalate on the negative side a properly constructed electrode, having a resistance sufficient to throw the neutral point outside the body, a very different condition of things is seen. At the positive pole the same strong acid reaction is obtained, but under the negative pole there is little if any observable reaction. On testing the liquid, however, inside the electrode, the seat of the neutral point, the alkalin reaction is obtained, the same as at the point of contact on the body when the ordinary electrode was used.

The most interesting experiments, however, were those made on the legs of a frog, which, as is well known, retain their irritability to stimuli for a long time after death. If, after decapitation, the hind legs of a frog are subjected to the influence of either the positive or negative pole by the use of ordinary electrodes, the changes in irritability are imperceptible. If, however, they are subjected to the influence of the positive pole alone, the action of the negative pole being eliminated in the usual manner, the muscles of the thigh will exhibit very decided diminished irritability. If, on the other hand, the action of the positive pole is eliminated, and the limb is subjected to the action of the negative pole, we get the characteristic phenomenon of catalectrotonos or increased irritability, and the muscles readily respond to currents much weaker than when they are in their normal condition.

These phenomena and various others are all readily verifiable, and for a more detailed account I refer to former articles.[1]

Utilizing the suggestions offered by these interesting physiologic observations, I have not unfrequently found it possible to favorably modify and even permanently relieve various conditions that formerly were not relieved by the ordinary methods of application. So far as the faradic current is concerned, the great utility of currents of high tension when applied through low resistance in the human body and especially by the bipolar method can not be overestimated. As an analgesic in uterine and abdominal pain, when passed through the low resistance of the mucous membrane, these induced currents of tension are of the greatest value, but so far as outward applications of the faradic current are concerned, I doubt whether we have made much practical ad-

[1] New York Medical Record, May 14, 1892 and May 6, 1893.

vancement, either in the methods of application or in the efficiency of apparatus; and in saying this, I do not forget the alternating sinusoidal currents introduced into electro-therapy by D' Arsonval, the essential nature of which is that it has a uniform rise and fall of potential from zero to the maximum and back again in both directions. For this current it is asserted that it possesses greater penetrating power than the ordinary faradic current, and that less pain attends the vigorous muscular contractions that it produces. In comparing the effects of this and other modes of electrization, D' Arsonval says: 1, that the continuous current does not show any immediate influence on nutrition; 2, Franklinization increases respiratory combustion, but in a less manner than sinusoidal currents; 3, ordinary faradization with a very feeble non-sinusoidal alternating current can increase respiratory combustion without pain, but with a strong non-sinusoidal current produces a fatal electrical tetanus.

My own experience, however, teaches me that, for most practical purposes, the old continuous coil with its 2,000 feet of wire and its perfect rheotome attachment, yields a current the essential character of which, as an aid to nutrition and for general tonic effect when applied externally, has not yet been surpassed. It has always seemed to me that the most important thing in electricity in medicine, the fundamental idea upon which all its therapeutics is based, is its nutritional power. It is this idea, which, in connection with Dr. Beard, I enunciated many years ago, and upon which I have based almost everything I have said or written upon the subject since. As to which of the various manifestations of electricity possesses the greatest efficiency in this direction, ideas will differ according to the extent and character of one's experience. Static electricity is undoubtedly a most valuable addition to our armamentarium. I could not afford to do without it. No one who expects to meet the demands of all the varying idiosyncrasies of the nervous system can afford to be deficient in the completeness of his electrical outfit. And yet the introduction and popularization of static electricity is responsible for a vast amount of unscientific and inefficient work in electro-therapy among those who confine their efforts to this form of electricity, with little knowledge of the subject in its entirety. With a magnificent static apparatus in all its pyrotechnic glory, set in motion and readily controlled by an electric motor, the treatment of a patient becomes the simplest and easiest thing in the world, both for physician and patient, and I should be glad to assure myself that it is the most efficient method of securing the tonic and nutritional effects of electricity. But after years of observation and comparative trial, I regret that I can not come to this conclusion. I regret it, because it has the great advantage of ease and simplicity of application over the general use of the faradic and galvanic currents. For other reasons, however, it is not to be regretted. It would indeed be a misfortune if in order to obtain satisfactory nutritional effects from electricity, the costly static apparatus which few can possess was an absolute necessity. Static electricity must ever be considered as an adjunct, merely, to the dynamic form of electricity, and this truth will always be taught by those who combine both an honest purpose and a thorough experimental knowledge of the subject.

IMPURE MILK IN RELATION TO INFANTILE MORTALITY.

Read before the Medical Society of the District of Columbia Nov. 13, 1895.

BY GEORGE M. KOBER, M.D.

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Last winter I had the pleasure of assisting our respected President in the collection of evidence on milk infections; the task proved so profitable that, by his encouragement, the investigation was extended in other directions and I present to you the results in one of these fields.

According to Oesterlein's statistics, it is safe to assert that the average death rate during the first year of life is 188 out of 1000 infants born. In England the average is 141.8; in France 223.2; in Italy 273.3. (Farr). These are mean rates for rural and urban districts. In towns and cities the mortality is always higher, amounting to 33.6 per cent., as compared with a rural mortality of 27.8 per cent. In some of the large cities the infantile mortality is simply frightful, having reached as high as:

480 per 1,000 at Chemnitz,
360 " " " St. Olave,
320 " " " Glauchau,
290 " " " Paris,
277 " " " New York,
276 " " " Brooklyn,
268 " " " Baltimore,
261 " " " Boston,
256 " " " Washington,
250 " " " Liverpool,
230 " " " Philadelphia.

The still-births are excluded in the American statistics. From these figures it appears, that, in many cities, out of every 100 children born alive, over one-fourth perish before the completion of the first year, but fortunately for the perpetuation of the human race, the average infant mortality all over the world is only about one-sixth of those born.

Of the twelve months during the first year of life, the first month furnishes the highest mortality, followed by the second, third and fourth month, next, by the twelfth month; this jump from the fourth to the twelfth month is quite suggestive, as it is the usual period of weaning with its attending danger from digestive diseases incident to artificial feeding; next to the twelfth month comes the fifth, sixth, seventh, eighth, ninth, tenth and eleventh months. During the second and subsequent years the mortality gradually decreases, and of children between the age of 1 and 5 years, there die annually 37 out of 1000; a loss of 188 during the first year, with 148 during the next four years, making a total loss of 336 out of every 1000 children born.

The mortality is greatly influenced by climate and seasons, as shown by a higher rate in the polar and equatorial regions with extremes of heat and cold. Generally speaking, the mortality is higher during the cold months than during the moderate months, on account of the greater prevalence of diseases of the respiratory organs, but the hot months like June, July and August are the most dangerous, at least, in this country and Europe, on account of the disastrous attacks of gastro-enteric diseases. The fatal influence of heat and cold upon infantile mortality is well illustrated by the tables published in Dr. Busey's essay on the "Mortality of Young Children," and while they apply to the city of Baltimore, because the essay was written at the request of the

trustees of the Thomas Wilson Sanitarium for Children of that city, they are no less true of other large manufacturing cities.

It would lead me too far to consider the various meteorologic conditions which influence the mortality rates as shown in these tables; but we should at least bear in mind, that sudden changes in temperature are especially liable to offend the peripheral nerves and thus cause an irritation, which is transmitted by reflex action to other parts of the body, where it may induce congestions, especially in the respiratory and digestive tracts. During the heated term the blood too, owing to an excessive function of the skin, is deprived of some of its constituents; it is taken away too much and too long from the internal organs; the proper distribution of the blood supply is interfered with; in consequence the tone of the stomach, heart, brain and other tissues is lowered, appetite and digestion suffer, the red corpuscles are decreased and not only infants, but adults experience languor and general debility; but apart, from this, and more intimately connected with the subject, remains the fact that heat not only tends to diminish the power of resistance of every cell to disease, but also favors the development of germ life in the milk.

This excessive infantile mortality has always been considered the opprobrium of the healing art. Dickson asked in vain: "How shall we prevent the early extinction of half the new-born children of men?" West truthfully asserts: "At least a third of all your patients will be children, and so serious are their diseases that one child in five dies within a year after birth and one in three before the completion of the fifth year;" and Swayne pathetically exclaims: "May it fall to the lot of some reader ere long to solve this startling problem."

While powerless to solve the mysteries connected with this subject, many of which are doubtless connected with the mortality laws in general, an attempt will be made to answer the practical question, Can they be reduced? I can not enter into details of infant hygiene, but must at least point out the fact that the mortality can be greatly reduced by improving the original stock, *i. e.*, the physique and habits of the parents, and placing them as well as their offspring under more suitable environments, especially with reference to fresh air, sunlight, exercise, suitable clothing and habitations and, last, but not least, proper food. The influence of favorable hygienic conditions is demonstrated by Casper's statistics published in 1825, showing that the mortality rate among royal children was only 57 per 1,000, as compared with 345 per 1,000 among the infants of the poor. Clay calculates that of every 100 children born in England, 90 will be alive of those born in aristocratic families, 79 in the mercantile class and 68 among the laboring classes. The difference in the mortality of legitimate and illegitimate children is very great, and varies according to Uffelmann as follows:

	Legitimate children	Illegitimate children
In France, mortality of	15 per cent.	30 per cent.
" Austria, " "	22.9 " "	35.1 " "
" Sweden, " "	13.0 " "	24.8 " "
" England, " "	14.0 " "	35.0 " "

But the most frightful mortality rates are everywhere furnished by the hand or bottle-fed children, amounting in Berlin 40 to 47 per cent., in Hamburg 29.4 per cent., and in Paris, according to Monat, it has reached as 70 to 75 per cent. Professor Kehrer informs us that of 8,329 infants six months of age and under, that died in Munich between 1868–1870, 1,231, or nearly 15 per cent., had been suckled from the breast, and 7,098, or over 85 per cent., had been hand or bottle-fed.

If we stop to inquire into the immediate cause of the excessive infantile mortality during the first twelve months, we find that about 40 per cent. perish from diseases of the digestive system, about 21 per cent. die from affections of the respiratory organs; next in frequency are the infectious diseases like diphtheria, scarlet fever, measles, whooping cough, mumps, scrofulosis and tubercular affections, rickets, etc. The extreme incident of a mortality of 40 per cent. from gastro-enteric disorders and the mortality of 2.5 per 1,000 from primary tubercular diseases of the abdominal lymphatics, can not fail to force themselves on our attention, and certainly points with more than mere suspicion to the fact that the morbific agent in these cases is introduced into the body with the food.

Notwithstanding these startling arguments against artificial feeding, the facts are that there will always be a large percentage of infants deprived of their natural food, and the question therefore confronts us, What is the best possible substitute for human milk, the requirements of which are:

1. That it must offer the same character and amount of nutritive elements, and in the same proportion as human milk.

2. The nutritive elements must be present in the same assimilable form, of the same consistency, and should be introduced into the stomach at a temperature not less than 98 degrees F. by means of suction and at proper intervals.

3. This substitute must not contain any morbific or infective agent, whether originally present or introduced during the preparation or keeping of the same. A moment's reflection upon the physiology of infantile digestion will at once suggest the propriety of rejecting all farinaceous foods before the expiration of the tenth month, except in very limited quantities, and previously converted into maltose by boiling as in barley water, but as milk is the natural food of all mammalia, few will be disposed to doubt that some modification of cow's milk offers the best possible substitute.

Comparison of cows' milk and human milk: the average composition of

	Albuminoids.	Fat.	Sugar.	Salts.
Cows' milk is	3.76	3.75	4.42	0.68
Human milk	2.00	4.13	7.00	0.20

Human milk contains, therefore, less albuminoids and salts and more sugars and fats; there is also a decided difference in the quality of the casein of the two secretions. The addition of dilute acid to cow's milk precipitates the casein in hard coagula or lumps, while in human milk it separates into a fine powder giving the appearance of light flocculent curds, which readily dissolve in an excess of acid. Since the coagulum in the same quantity of human milk is but one-fifth as large as that of cow's milk, this difference, which is solely one of compactness and solubility, can not fail to influence the digestibility of the two secretions, and explains at once why even moderate quantities of undiluted cow's milk are liable to overtax the digestive apparatus of the infant. (Leeds, Starr, etc.) In addition to this, and perhaps greater in importance, is the fact that human milk

from a healthy subject rarely contains any micro-organisms, while cow's milk is never free from bacteria and may moreover be the vehicle of infectious germs and other morbific agents. Apart from the fact that unscrupulous dealers not infrequently lower the nutritive value by skimming or watering the milk, Dr. Busey and myself in a joint contribution have elsewhere pointed out how the quality of the milk may be impaired by improper food and care of the animals, and how the milk may produce mischief if derived from animals while being treated with strong remedial agents, or as the product of diseased animals, especially those suffering from inflammatory lesions of the udder, tuberculosis and other communicable diseases. We have collected 138 epidemics of typhoid fever, 74 of scarlet fever and 28 of diphtheria, which have been caused by infected milk, and indicated the various ways by which it is possible for disease germs to be carried in this way. Permit me to direct your attention to a very common milk fault, which may be considered a source of constant danger in infant feeding and perhaps the most important factor in swelling the mortality rates of our helpless babes.

Every consumer of milk has doubtless observed the presence of more or less foreign matter found at the bottom of the vessel or bottle in which it is kept —indeed it is a matter of such common occurrence that it hardly excites our attention. Professor Soxhlet was perhaps the first to point out that these deposits are largely made up of excrementitious matter from the cow which, adhering to the udder of the animal, gained access to the bucket in the act of milking. Professor Renk, of Halle, brought this subject to the attention of the Section of Hygiene at the International Medical Congress in 1890, and few of his audience are likely to forget the valuable object lesson presented by him, consisting of filtrates of milk samples from different German cities, each representing the amount of filth contained in a liter of milk, and furnished at once a positive index of the degree of cleanliness observed at the various milk farms. The average weight *dried* at a temperature of 212 degrees F., of these sediments was 3.8 mgrs. at Leipzig, 9.0 mgrs. at Munich, 10.3 mgrs. at Berlin, and 12.2 mgrs. at Halle. These filtrates were so disgusting in appearance that we were not disposed to accept them as a standard for American milk, and with the courteous consent of the Health Officer, Dr. Woodward, Professor Hurd prepared filters from twenty-four specimens of Washington milk, taken at random, with the result that they presented even a greater amount of impurities, weighing all the way from 5 to 30 mgrs. per pint or quart, and as fecal matter contains about 85 per cent. of moisture, the weight of undried filth in the maximum specimen would have been about 180 mgrs. per quart.

Now it is not at all likely that the average American housewife would permit any one to throw this amount of filth into her milk pitcher and yet, practically, we suffer it to be done, and there is no law to prevent it. If these sediments are subjected to microscopic examination, we will find, as shown in the micro-photographs, prepared through the kindness of Dr. Reed by Dr. Gray, of the Army Medical Museum, that they are composed of epithelial *débris*, hairs of the cow, excrementitious matter, vegetable cells and fibers, organic and inorganic dust particles, bacteria, fungi and spores of every description; fully 90 per cent. of the bacteria found in such specimens are fecal bacilli, all of which is not only disgusting but extremely suggestive of danger. We know that the number of microörganisms in such milk is largely increased and bacterial development and consequent decomposition is materially hastened in such a medium. Dr. Plant, of Leipzig, found, as a rule, that in warm weather the so-called fresh milk delivered in the morning has already passed the period of incubation and is unfit for use by young children on account of the germ development, and of forty-seven infants whose milk supply was carefully investigated by him, eighteen developed digestive disorders and six died.

The greatest danger from milk of this class is the possible presence of tyrotoxicon and other bacterial products. Professor Vaughan believes that the former poison is developed by the growth of a germ which, under favorable conditions, multiplies very rapidly. The presence of the very filth referred to, a summer heat, and the pernicious habit of placing the milk before cooling in covered cans or bottles, perhaps dirty beside, constitute favorable environments for the production of bacterial toxins. The relation of this poison and of milk bacteria to cholera infantum and the summer diarrheas in bottle-fed children is gaining ground and will doubtless result in a great reform of our milk establishments.

Cow's milk, no matter how great the care exercised in milking, contains the germs which bring about fermentation and decomposition. These bacteria of different species abound in the atmosphere whenever the temperature is above 60 degrees F., cling to the udder and teats and even invade the lacteal ducts and finding there an excellent culture tube, multiply with great rapidity. Dr. Schultz has shown that the first half gill or so of milk obtained from the cow may contain 1,360,000 germs per cubic inch, while the milk drawn later is free from bacteria, hence we may safely conclude that the bulk of these organisms get into the milk from external sources, such as the air and dust of the stable, the hands and clothing of the milker, the hair or udder of the cow, the hay and straw, and last, but not least, the water, in which the milk vessels are washed, and with which the milk is not infrequently diluted.

Sedgwick and Batchelder have shown that with special precautions on the part of the milkman, the number of bacteria in fresh milk may not exceed 500 to 1000 per c.c., but when he uses the ordinary flaring milk pail, with more or less rough disturbance of the bedding and shaking of the udder, as many as 30,500 have been counted in 1 c.c. When we recall the fact that these germs during the heated term multiply with alarming rapidity, so that the average sample of Boston milk contains as many as 2,300,000 bacteria per teaspoonful, many of which are capable of evolving poisons, we can readily appreciate how the injection of such milk may give rise to the so-called summer diarrheas of infants and swell their mortality.

It has been proved, bacteriologically, that milk is not only a favorable culture medium for many saprophytic germs, but also for the germs of typhoid fever, erysipelas, tuberculosis, glanders, diphtheria, pneumonia streptococci and other pyogenic organisms, and this fact alone points at once to the necessity of a rigid control of our milk supply.

A review of the evidence on milk contamination,

both in this country and Europe, shows that the laws which have been enacted to protect the public, deal largely with the prevention of milk sophistication, and even in this respect have fallen short of their aim. Indeed, it is doubtful whether legislation in matters of this kind is as effective as public education. The importance of a pure milk supply was recognized as early as 1878 in connection with some of the milk-cure institutes in Germany. The system then originated has been improved by time and experience, and lately introduced into Boston, New York and Philadelphia, and appears to offer, by trade competition, the best solution of an important problem; those of you who are familiar with the surroundings of our milk farms and the habits of the average dairy employes need no arguments for the necessity of sanitary reform. No family ever thinks of employing or keeping a cook afflicted with a communicable disease, and yet not the slightest restriction is placed, or question asked, about the persons who handle our milk supply, which is notoriously one of the most sensitive and susceptible articles of food to contaminating influences, but the absolute necessity of such milk laboratories are based upon the following facts:

1. It has been demonstrated that milk may be morbific by reason of an abnormal number of ordinary milk-bacteria and the presence of saprophytic germs capable of producing toxins, such as tyrotoxicon, resulting in cholera infantum and other gastro-enteric diseases.

2. Milk may be rendered unfit for use by reason of improper food and care of the animal, or while the animal is being treated with arsenic, copper, iodin, lead, mercury, tartar emetic, aloes, atropia, colchicum, croton oil, senna, strychnin, salicylic acid, turpentine, veratrum viridis and other remedial agents.

3. Milk itself may be morbific as the product of a diseased animal. Dr. Busey and myself have elsewhere pointed out that inflammatory conditions of the udder and teats, especially the condition known as garget, are doubtless responsible for a large number of cases of pseudo-membranous diphtheria and other septic infections. The milk of animals suffering from acute specific enteritis, puerperal and other septic fevers, foot-and-mouth disease, cowpox, anthrax, pleuro-pneumonia, rabies and tetanus has also been known to prove injurious to the consumer.

4. It has been proved by Ernst, of Harvard, that three out of twenty-five samples of Boston milk transmitted the germs of tuberculosis in the animals experimented upon, and Dr. Fries found that the ordinary market milk of Copenhagen proved infectious in six out of twenty-eight rabbits, showing a corresponding degree of danger to delicate infants, and of which Dr. Busey and myself have collected a large amount of clinical evidence.

5. Milk may acquire infective properties after it leaves the udder of the animal, in support of which Dr. Busey and the speaker have tabulated 138 epidemics of typhoid fever, 74 of scarlet fever and 28 of diphtheria, the analysis of which showed that the poison may reach the milk by soakage of the germs into the well water with which the utensils are washed, or by the intentional dilution with infected water; that the infection can be conveyed by animals wading in sewage polluted water, or by the dairy employes acting as nurses, or suffering themselves from some mild infection while continuing their usual duties, or are convalescents from the disease; that infection has taken place through the agency of scrubbing brushes, flies and other insects, exposure of the milk in sick rooms, or washing the patients with the same cloth used in wiping the dairy utensils. Surely this is sufficient evidence, enough to show that something should be done to protect the public; and I believe this can best be accomplished by encouraging the establishment of milk depots, like the Walker-Gordon Laboratory of Boston, and of which Dr. T. M. Rotch, of Boston, and Dr. R. T. Taylor speak so approvingly.

"The farm and herd are under the absolute control of the laboratory and are used for laboratory purposes only; the cows, their food, their stables, their pasture and their drinking water are subjected to the frequent, paid, critical examination of the best veterinary surgeon that can be procured in Boston. The dairymen dress in white suits before milking, having each previously had a bath. The milk pails are of glass, and the milk, after being aerated and cooled to about 44 degrees F. in a tank of ice and water, is delivered at the laboratory in Boston within four hours after the milking. The average and almost stable analysis of this original milk shows a percentage of:

Fat	3.90
Milk sugar	4.30
Proteids	4.00
Salts	0.65
Total solids	12.85
Total liquids	87.15

"At the laboratory a ventilating engine keeps up a constant change of air and a hose keeps the enameled brick walls and stone floors wet to prevent contamination of the milk from dust, while it is being modified.

"The whole milk, after being pasteurized, passes through a Stockholm separator, which makes 6,800 revolutions a minute and yields a cream of an almost constant 16 per cent. fat. It not only does this, but it removes all dirt that, from unavoidable causes, has gained access to the milk, thus yielding a clean skimmed milk practically free from fat, only 0.13 per cent. remaining.

"The modifier has, as a result, stable component parts of the original milk to work with, made up by analysis as follows:

	Fat.	Sugar.	Proteids.
Cream giving	16.00	4.00	3.60
Skimmed milk giving	0.13	4.40	4.00

"In addition to this, the modifier has a 20 per cent. solution of sugar of milk, freshly prepared with distilled water each day, and is therefore able to put up correctly a prescription which calls for certain percentages of fat, sugar and the albuminoids. After copying the formula or prescription in a book kept for that purpose, the "modifier" picks up a basket with as many compartments as meals are ordered, and fills each compartment with a tubular bottle holding the number of ounces ordered for each feeding. After mixing the ingredients *en masse*, as ordered, each bottle is filled and the basket passed to the stoppler, who plugs it with cotton. The whole is then pasteurized for half an hour, and after proper labeling the basket is ready for delivery. The delivery wagon is divided into two compartments; the back which is lined with zinc and easily cleaned is for the fresh milk and baskets, and the front for soiled tubes, baskets, etc., which are sterilized at the laboratory

before being taken into the modifying room." (R. F. Taylor).

For a long time it was assumed that the composition of human milk varied with the age of the child, but Professor Leeds' long series of analyses show that after the function of lactation is once fairly established, the composition of woman's milk remains practically the same; and while the child receives more nutriment, day by day, it is in consequence of larger doses, rather than of a stronger quality. This is quite in harmony with reason and common sense.

Now if we wish to order a humanized milk as prepared at these laboratories, say for a child one month old, we would order the following mixture:

Cream	f℥vi	180
Milk sugar solut. 20 per cent.	℥vi	180
Skimmed milk	℥ivss	135
Lime water, 1–20.	f℥i	30
Distilled water	f℥vi	180

This is divided into twelve feedings, 2 ounces each. As the infant grows older, the intervals are lengthened and the doses increased. A child from two to five months old should receive eight feedings of 4 ounces each, and a strong child from five to eight months old, may receive from 6 to 7 ounces at each of the eight feedings, according to the indications which are best studied by the weight chart. Professor Rotch uses lime water for the purpose of partially neutralizing the acidity of the gastric juice, in consequence of which the casein coagulates more slowly and the formation of firm undigestible curds is thus prevented. Professor Leeds, instead of lime water, strongly recommends the addition of peptogenic milk-powder, which is a preparation of pancreatic lactose and alkalin milk salts, originated by Fairchild Brothers & Foster of New York.

There is nothing strained in the requirement of an ideal milk supply, as good and sufficient reasons have been given, and by means of which we may hope to obtain such a standard of milk as will not only effect a decided reduction in infantile mortality, but will render the dissemination of infectious diseases through the milk supply a matter of history only. Apart from these advantages the proper way to manufacture condensed milk suitable for infant feeding is to modify the milk before evaporation, a plan which, as far as I know, has not been attempted and is urgently called for.

In the meantime, it will be well to educate the public in the matter of milk sediments, which can readily be seen at the bottom of the bottle after a few hours standing. If we tell our dairyman the source of this pollution and how it can be prevented, something will be accomplished. No milk supply is absolutely safe without pasteurization; and for infant feeding, until we can do better, I advise the following combination recommended by Professor Leeds:

Milk	½ pint	240
Water	½ pint	240
Cream	2 ounces.	60

Peptogenic milk powder one large measure. This mixture should be placed on a hot range or gas stove and with constant stirring slowly heated for ten minutes to bring it to the boiling point; it is then removed and quickly cooled, and should be kept on ice and again pasteurized before feeding. While milk thus prepared can never take the place of breast-milk from a healthy mother, it is very near in all respects to human milk and is perfectly sterile, as far as the ordinary disease germs are concerned.

Prevention of disease is perhaps the central idea and object of sanitarians, but as hygiene also deals with the art of improving health, the question of a pure milk supply is not only important in the feeding of infants, but also the sick and invalids, and I trust, therefore, one of general interest to the profession.

A CONTRIBUTION TO THE STUDY OF ATRESIA OF THE UTERINE CANAL AFTER THE MENOPAUSE, WITH A REPORT OF THREE CASES.

Read before the Medical Society of the District of Columbia, June 12, 1895.

BY HENRY L. E. JOHNSON, M.D.

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WASHINGTON, D. C.

Some years ago, when I was learning my first lessons in clinical gynecologic practice in a hospital devoted especially to that department of medicine, I had the good fortune to see and make the diagnosis of atresia of the vagina with retention of menses in a young woman, and later on, a case of atresia of the cervix uteri in an old lady who had passed the climacteric period several years. In the first case, operation was had, which resulted in cure. The second case presented many symptoms, some local, but particularly manifested in the nervous system. She was treated by medicines only and was not accorded an operation, and because no improvement followed was discharged from the hospital as a malingerer. After several years of invalidism she died of some "obscure disease."

I was taught that operation in such cases was contra-indicated, because menstruation had ceased, fluid accumulation being impossible, and surgical interference was attended with much danger and a high mortality. I will ask the society to bear with me while I give the history of some cases in which atresia of the cervical canal existed and for the relief of which operative interference was instituted with good results. The bibliography on the subject is also presented for your consideration, and you will see that the subject has not received the attention which it deserves when you learn the number and standing of the writers who make no mention of the condition.

HISTORY OF CASES.

Case 1.—On March 21 of the present year, I was consulted in my clinic at the Central Dispensary and Emergency Hospital by Mrs. L., age 54 years, white, married, one child, no miscarriages. She was born January, 1840, enjoyed good health until 1866, though always thin and never very strong. Family history excellent. First menstruated during the thirteenth year, that function being normal in every particular. Married in 1863, and in due time was delivered of a healthy child. Labor and puerperium normal. Shortly after death of child, three years later, she first complained of "womb trouble" and consulted a number of physicians with more or less relief but was never entirely cured. Menses ceased in 1886, since which time she has never been well. In July, 1887, after investigation and consultation she was committed to the United States Hospital for the Insane, and there treated for acute melancholia with hallucinations of persecution. She was shortly discharged, relieved but not cured. At that time she was very fleshy and bloated, notwithstanding the fact that she frequently refused her food. One year later she returned voluntarily to the hospital seeking admission in order to escape imaginary persecutors. She was not re-admitted because of lack of authority. She was at that time very thin and anemic. Since the cessation of the menses she has complained almost constantly of

backache, pain in lower abdominal region, bearing down' frequent and painful urination, constant leucorrhea with irritation and excoriation of external genitals. Loss of appetite, coated tongue, indigestion, nausea, vomiting, meteorism and constipation, palpitation of heart, irregular pulse and vertigo. Occasional fever, chills, and sweatings, nervousness, insomnia, prostration, loss of flesh, alteration in functions of special senses (sight and hearing), slowness of speech and mental operations. Numbness, trembling and twitching in limbs. Hysteria, hallucinations of impending danger and persecution and of sight and hearing.

Examination: very fat, color bad, pale and sallow; tongue coated and trembling, hands trembling, pulse rapid. Is very nervous. Abdomen enlarged and distended with gas; perineum lacerated to second degree; prolapse of mucous membrane of urethra; vagina inflamed; muco-purulent discharge, and prolapse of anterior and posterior wall. Cervix uteri not discoverable by sight, entirely obliterated; no trace of os can be found; the supravaginal portion of cervix, however, can be determined by touch. Uterus small, but larger than normal at her age, soft, retroverted, fixed, tender on pressure. Both tubes enlarged, fluctuating, fixed and tender on pressure. Diagnosis: atresia of cervical canal, with retained fluid. Operation decided upon.

On March 24, in presence of some of the college class, I seized the vault of the vagina at the site of the cervix with a volsellum forceps and introduced a curved bistoury about two inches and a half deep, into the tissues where I had located the cervical canal. This was followed by an evacuation of about two or more ounces of greenish pus more or less offensive in odor. Subsequently irrigating the vagina with antiseptic solution and applying antiseptic applications on pledgets of sterilized cotton. Drainage of pus continued for two weeks with the occasional passage of hard inspissated lumps of pus and epithelium. Marked improvement in symptoms followed, with reduction in size of the tubes and uterus.

April 4, in the presence of some of the hospital assistants, I removed a ring of cervical tissue from around the incisson, making an oval opening considerably larger than a normal os. The mucus membrane intra and extracervical not stitched together, but the space allowed to heal by granulation. Shortly afterward all nervous intestinal and circulatory symptoms disappeared, and patient felt quite well. The local condition was much improved, though the uterus is still retroverted and somewhat fixed. This condition had evidently existed for a long period and has been a most important factor in the causation of her varied and numerous symptoms; in fact, it might be no exaggeration to infer that the local condition has been the only lesion. Within a few weeks, a prominent gynecologist here, after local examination, pronounced her free from any uterine disease and transferred her for treatment to a specialist in nervous diseases.

It is interesting to note the number and skill of the physicians who have at different times had charge of this case, none of whom, however, discovered the nature of the malady. This failure to recognize the lesion is due almost entirely to the lack of, or faulty teaching in, the text-books, and it is hoped that this contribution will stimulate special study of these post-menopause cases.

Case 2.—Consulted me at the hospital on June 6 last, Mrs. W. H., white, age 50 years; widow about one year; one child after marriage about thirty years ago. Labor normal, no miscarriage; menstruated between fourteenth and fifteenth year. Always strong and healthy and never had any womb trouble, so far as she knows. Never had a vaginal examination made since the birth of her child. Menses absent about four years and been sick during that time. Complains of backache, soreness in walking, bearing down pains, frequent urination and leucorrhea, loss of appetite, indigestion and constipation. Is very nervous and hysterical, with numbness and twitching in limbs; has been losing flesh for some time and can not sleep at night; has been having convulsions at intervals of two or three months for the past two years. During the past four years she has consulted a number of physicians, all of whom told her she had no womb trouble and none of them thought it necessary to make a vaginal examination, because "she had passed the change of life," and as they thought, gave no symptom of womb disease. Examination: partial laceration of perineum, vagina inflamed, uterus small, soft and boggy; atresia of canal at internal os. Sound forced through obstruction and two or three ounces of muco-pus evacuated. Patient felt relief at once and described her sensation as if some tension or pressure had been removed. She has continued to improve and now feels better than she has for years. The same subsequent treatment was followed in this as in the preceding case.

It is fair to assume that this condition exists more frequently than is usually supposed, and many similar cases may be under treatment to-day in the asylums for the insane. The menopause being unquestionably a physiologic process should not be attended with the extraordinary symptoms which we witness in so many cases, the exception being found, I believe, in those where the normal changes are interrupted or modified by pathologic conditions.

Clinically, all women passing through the change of life or menopause, do not have serious symptoms, and when exceptional cases are observed, we should conclude there is a cause for their complaints, and a thorough local examination should be instituted. In this department of medicine we should always bear in mind the possibility of this condition and its importance, when the lesion itself will be easily discovered and cured.

PATHOLOGIC SPECIMEN.

The unusual growth which I removed to-day, I will present for your consideration, because it presents an atresia of the cervical canal and obliteration of the infravaginal portion of the cervix and, practically, an atresia of the vagina at its extreme upper portion.

Mrs. B., age 58 years, married, several miscarriages. Been in ill health for sixteen years. Never had any flooding spells. Has had an enlargement of the abdomen for years but never knew until now she had a tumor. Has not menstruated for five years and was very irregular for five years previous. Had a slight muco-sanguinous discharge two months ago, which lasted two or three days. Has been confined to bed for six months on account of pain in abdomen and neuralgia of face. Examination: abdomen enlarged to size of nine months' pregnancy by a large irregular fluctuating nodular mass, which is almost entirely confined to the right lateral portion of the abdomen and extending from deepest pelvic region to diaphragm. No trace of the cervix or os can be found. From absence of flooding, the soft, irregular and fluctuating character of the mass and its location, principally in the right side and absence of cervix and canal, I diagnosticated multilocular cyst of right ovary, and excluded the probability of fibroma. Just before making the incision, however, I gave reasons for excluding fibroid tumor, extraperitoneal (so-called abdominal) pregnancy, but admitted the possibility of the uterus being distended with fluid because of atresia of the cervical canal; though from the general character of the growth I did not believe it uterine, thinking that organ was atrophied. On section mistake in diagnoses noted.

Enlarged multiple fibroid was found with degenerated interior containing fluid, about two quarts offensive pus. A soft, stringy, friable mass was discovered growing from posterior surface of uterus, completely filling up the pelvic cavity and forcing the viscera above. The right Fallopian tube was about ten inches long, having attached to its fimbriated extremity a large fibroid ovary. Two large soft masses containing fluid were next reached. The first attached to the fundus uteri, the other superimposed upon the first, and attached firmly to the diaphragm above. The peritoneal cavity was distended with a large quantity of cherry-colored fluid. The masses were attached or adherent to themselves, the parietal, back, and pelvic walls, omentum, liver and intestines. The adhesions were freed; in some places thin layers of the cyst wall were removed and left attached to the intestines, complete separation being impossible. Notwithstanding the extensive adhesions neither omentum or intestines were injured. The tumor was delivered and the uterine and ovarian arteries ligated. The mass was then easily excised, no hemorrhage following. A very excellent intraperitoneal stump was formed and covered by peritoneum, a small fibroid being removed from the

stump, posterior to the bladder. The cavity was perfectly dry when the incision was closed, and the patient was placed in bed. Profound shock followed, patient dying within an hour, never regaining consciousness. The operation lasted one hour and forty minutes. Tumor weighed exclusive of fluid thirty-seven pounds.

After opening the abdomen the operation might have been abandoned, but the patient requested that the growth should be removed at all hazards. This case is a most instructive one, and shows how atresia with obliteration of the cervix may prevent an accurate diagnosis being made; and it is a particularly fit specimen to accompany this contribution. After its removal the uterine cavity was found very much distended, presumably with gas, physometra, contained no fluid and measured nine inches in diameter. But for the atresia and obliterated cervix the sound would have been of great assistance in diagnosis, and would have cleared up considerable doubt.

The report of the pathologists of the hospital, Drs. Gray and Parker, and that of Dr. Walter Reed, U.S.A., Curator of the Army Medical Museum, is herewith appended, together with the photographs of the growth made by Dr. Church, the resident physician.

FIG. 1.—View from under side.
A. Fundus of uterus. B. Pelvic mass, from dotted line. C. Left broad ligament, and ovary. D. D. Masses attached to uterine fundus, and containing fluid.

LIONEL LABORATORY, WASHINGTON, D. C., June 28, 1895.

Dr. H. L. E. Johnson.

Dear Doctor:—The sections from the tumor of uterus removed from Mrs. B. prove to be malignant in character. The growth is a sarcoma of a mixed variety; it is composed of round and spindle cells of various sizes.

The round white tumor which occupied the position of one of the ovaries is not malignant; it is a soft myxofibroma.

Yours truly, W. M. GRAY,
Pathologist Central Dispensary and Emergency Hospital.

WAR DEPARTMENT.

SURGEON-GENERAL'S OFFICE, U. S. ARMY MEDICAL MUSEUM AND LIBRARY.

WASHINGTON, D. C., July 3, 1895.

Dr. H. L. E. Johnson, 1400 L St. N. W., Washington, D. C.

Dear Doctor:—I beg to submit the following report of an examination of the specimen of uterus and appendages with tumor mass, which was received at the Museum on June 26, 1895.

Dr. Lamb furnishes me with the following gross description of the specimen; the uterus, which has been removed at the internal os, is somewhat pyramidal in shape, and measures 6.5 x 6.5 x 7. The enlargement is due partly to hypertrophy and partly to the fibroid growth, which latter is situated in the left wall and projects into the flattened uterine cavity. Within this fibroid there is a large cavity, with rough inner surface, filled with a recent blood clot. Projecting upward from the fundus are several large tumor masses, one of which is hollowed out into a cyst, with thick wall and rough inner surface, the latter being overspread with blood vessels. The right tube is adherent by its fimbriated end to the ovary; left tube normal. Right ovary converted into a firm fibrous-looking mass, 3 x 2 x 2 inches in diameter; left ovary normal in size and structure; shows remains of corpora lutea. Posterior to the lower end of the uterus is a large shredded and brittle mass, covered on its upper side by the peritoneum of Douglas' cul-de-sac.

Microscopic examination of sections taken from different parts of the tumor mass show the structure of a mixed cell sarcoma, richly supplied with blood vessels. In several parts of the section there are seen cross sections of blood vessels with intact intima, and which are surrounded by dense masses of round and spindle-shaped cells, giving the picture of an angiosarcoma. Microscopic examination of

FIG. 2.—Left lateral view.
A. Cervix at point of amputation and atresia. B. Cavity of uterus laid open. C. Pelvic mass, from dotted line. D. D. Masses attached to uterine wall and containing fluid. E. Cavity of abscess, containing about two quarts pus. F. Pedicle attached to diaphragm.

FIG. 3.—Right lateral view.
A. Fibroid ovary. B. Uterus. C. Normal ovary and broad ligament. D. Cavity of abscess. E. Pelvic mass, from dotted line. F. Long fallopian tube.

the small tumor mass occupying the position of the right ovary proves it to be a myxofibroma; there are no remains of ovarian structure to be seen.

Very respectfully,
WALTER REED,
Surgeon U. S. Army, Curator.

CAUSE AND FREQUENCY.

The question will be asked, How is the atresia produced, and how often does it occur? It is caused physiologically by the reduction in size of the uterus which takes place in normal atrophy, where the organ is reduced in some cases to a mere nodule. Patho-

logically, from cancer, tumors, such as fibroids, catarrhal and other inflammations of cervical endometrium, extension of vaginitis into cervix (particularly senile vaginitis), small polyps causing endocervicitis, post-diphtheritic inflammations, the use of strong caustics, actual or electric cautery, trauma, and contraction or cicatrization following trachelorrhaphy.

VARIETIES.

The atresia may occur at the external os or internal os, or may include the entire cervical canal, and in some instances, the cervical canal is obliterated, together with the vaginal portion of the cervix, so that no trace of the cervix is to be found through the speculum, and its site is with difficulty found upon digital examination.

DIAGNOSIS.

The diagnosis is based upon the age and history of the patient, the size and consistency of the uterus and tubes, and the obstruction discovered by the sound, or the absence of the cervix and os as described above.

TREATMENT.

Open the canal with sound or knife, followed by antiseptic irrigation and douches; keep the canal patulous, by dilation, or excision of cervical tissue when necessary. Operate under strict modern methods. Treat the cavity of the uterus locally with antiseptic applications and irrigations.

DANGER.

Danger arises from faulty asepsis, and perforation of organ by careless or bungling operators. Failure to determine accurately the size of the uterus and direction of the canal will lead to error.

Maryland and Virginia Medical Journal, Richmond, 1860, vol. xv, pages 292-295, Art. 4. Report from the Infirmary of the Medical College of Virginia (service of Dr. McCaw), by Dr. Thomas Hunter, resident physician. "Case of Occlusion of Os Uteri." A negro named Agnes, age 47, attempted an operation by a long curved trocar introduced by Dr. McCaw through the speculum and made to enter the uterus about the center of its os; was pushed to depth of one and one-half inches without entering the cavity of the womb. No further attempts were made, "and moreover, as that period of life had arrived when the menstrual function ceased, Nature herself might relieve her without the pain and risk of an operation." Had two attacks after this. Ends article as follows: "In a few days after her last attack she left the Infirmary. She has not been heard from since, but in all probability she has been relieved from all further trouble by the total disappearance of the menstrual function."

Transactions Obstetrical Society of London for the year 1877, vol. xix, pages 176-177. "A Case of Suppuration of the Uterine Cavity resulting from Occlusion of the Cervix." Dr. Albert Lewis Galabin. "Mary K., 63 years old, had been widow thirteen years. Has had eight children and two miscarriages. Menstruation ceased ten years ago. Punctured from the vagina by a small trocar and fluid evacuated was pure pus. Symptoms of general peritonitis soon came on, and the patient died after a few days."

The specimen exhibited shows the occlusion to have been due to the presence of cancerous deposit beginning about the internal os and not manifestly affecting the external part of the cervix.

Transactions of the American Gynecological Society for the year 1879. Boston, 1880, vol. iv, pages 428-432. "Progressive Senile Obliteration of the Uterine Cervical Canal," by Dr. Henry Campbell, Augusta, Ga.

Case 1.—Senile obliteration of the cervical canal with accumulation within and distension of the uterine cavity. Evacuation by incision and dilatation. The patient a virgin. Called Aug. 4, 1876, to Miss N. H., age 55, in consultation with Dr. Amory Coffin, of Aiken, S. C. Operated. Discharge intolerably offensive; it more nearly resembled rotten egg effluvium than anything else; amounted to nearly eight ounces. Jan. 26, 1877, Miss N. H. came to Augusta for further treatment. Stated the offensive discharge from vagina had continued but a few days after operation. Jan. 26 operated again; in ten days uterus appeared to be normal. July 7, 1877, she was in an extremely low condition. Died from irritative fever and exhaustion soon after.

Case 2.—Senile obliteration of cervical canal. Patient a multipara. April 4, 1878. Mrs. L. Z., of South Carolina, age about 58 years; mother of eight or ten children. Youngest about 16. June 26, 1878. Operated; evacuated fluid nearly sixteen ounces, about consistence of thickened milk, closely resembling in its offensive odor that previously described. Recovery. Health perfect in every particular.

Atlanta Medical Register, 1881-82, N. S., vol. i, pages 65-73. "Atresia of the Vagina and Uterus." A Clinical Lecture by Dr. A. F. Erich, Baltimore, Md. Professor of Diseases of Women, College of Physicians and Surgeons, Baltimore. Surgeon in charge of the Maryland Woman's Hospital, etc., says: "Women who have passed the menopause sometimes suffer from an accumulation of mucus or muco-purulent fluid in the uterus, due to the atresia of the os following endometritis or the application of caustics to the cervical canal. In other cases the os may be closed by the formation of an epithelial stratum resembling a false membrane, completely occluding the os. This condition is not infrequently seen in prolapse of the uterus. A sound can generally be pushed through the obstruction and the passage afterward dilated." The indications in all cases of atresia accompanied by symptoms, are to empty the retained fluid, keep the tract pervious and restore if possible the functional capacity of the sexual organs.

Chicago Medical Journal and Examiner, 1883, vol. xlvi, pages 394-396. "Two Cases of Stenosis Uteri with Symptoms of Locomotor Ataxia," by Dr. O. Stroinski.

Case 1.—Mrs. M. N., 52 years of age. Operated. Perforated cervix with trocar and dilated with laminaria tents, then introduced intra-uterine pessary. After six weeks the phenomena of locomotor disturbance began to disappear and micturition was normal.

Case 2.—Mrs. Anna W., 36 years old, unable to leave bed for the last three months. Operated. Improvement was more rapid in this case; able to do housework after two months. Ends as follows: "It is probable that pressure on the uterine nerves, caused by the agglutination of the uterine walls acts reciprocally on the nervous system of the abdominal part of the body and on that of the spinal cord."

Transactions of Obstetrical Society of London for 1885. London, 1886. Vol. xxvii, pages 81-83. "Distension of Uterus from Partial Obstruction of Cervix." Dr. A. L. Galabin showed the uterus of a woman, age 61, in which distension of the body with muco-sanguineous fluid was found in association with a partial obstruction of the cervix. The patient died six days after the operation for cancer of the breast. The canal was obstructed by a median septum about three-quarters of an inch long, occupying that part of the cervix and the summit of the vagina."

Clinical Lectures on the Diseases of Women, delivered in Saint Bartholomew's Hospital, by Dr. J. Matthews Duncan; 4th edition, London, 1889. J. & A. Churchill. Lecture II. "On Retention of Mucus," page 65. "Atresia may occur at any part of the course of the genital passage: and I show you here an example of what happens to be the commonest acquired atresia—atresia of the internal os uteri—coming on in old age, and producing in the specimen I show you, a pyometra, the body of the uterus being distended so as to be a hollow globe capable of containing a small apple."

Zeitschrift fur Medicin, Chirurgie und Geburtshulfe, n. f. v., 1866, pages 22-84, 91.100, by Prof. Dr. C. Hennig, Leipzig, "On Atresia of the Uterus," says: "But exceptionally one meets atresia after the climacteric period. Although such cases occur very often in which the internal os comes together, but does not close entirely (*hydrometra ex involutione oriunda*). Of 100 females who have passed the fiftieth year, one will find about twenty-eight with atresia of the internal os, and, doubtless the period between 60 and 70 years as the most prolific for this above named anomaly to make its appearance. Notwithstanding, I do not mean that one dare perceive senile atresia as a physiologic condition."

Allgemeine Wiener Medizinische Zeitung, 1878, vol. xxiii, pages 267-268, 270-271, 280. "Obliteration of the Cervical Canal," by Dr. Ignatius Treitment," by Dr. A. Tripier, of Paris: "That the internal os of the cervix is commonly completely obliterated, which Moyer has already laid stress on; that this growing together appears to be normal in old women. Guyon found it thirteen times in twenty uteri of women from 50 to 70 years old.

"Ueber Atresia der Nichtschwangeren Gebärmutter," by Franz Reder, University of Rebstock, 1860 (Inaugural Dissertation). Mentions senile atrophy of the cervix producing atresia.

"Ueber Atresia der Vagina und des Uterus," by Wright Barnum, University of Jena, 1891 (Inaugural Dissertation). Under "Results and Symptoms" he divides them into three groups, in the last of which (c), "Results of Atresia After the Menopause," he says: "In the third period we have as a sequel an accumulation of mucus or pus. This is the favorite time for hydrometra. This accumulation is serous, mucus, etc." He advises operations in such cases.

"De L'Atrésie du Col de L'Uterus." Thésis by Elisée Ribard, Montpellier, 1869. Gives two cases: Female aged 55 years, atresia internal os, operation complete cure. Female aged 53, atresia due to abuse of coitus; she died and an autopsy was held, when condition was found.

"Sur les Rétrécissements de L'Uterus." Thésis by Dr. J. Henri Pouillet, Paris, 1861. Considers senile atrophy as a cause of atresia. Gives a case in a woman of 50, but does not say that she had ceased menstruating.

"Essai sur la Rétrécissement du Conduit Utérin, Considéré Principalement au Point de vie du Traitement." Par Paul Godfroy Thérese, 1867. Gives a case of a woman aged 53 years who was suffering from stricture of the neck of the uterus, due to a fibroid tumor of the body which extended to the neck.

Klinische Mittheilungen aus der ersten Geburtshilflich-Gynäkologischen Universitäts-Klinik in Buda-Pesth. Uber die Jahre 1874-82. Mit Kurzer übersicht uber die Jahre, 1869-74. Herausgegeben von Dr. Theodor von Kezmarszky, Stuttgart, 1884, page 237, under "Gynäkologische Poliklinick," had 660 cases. Gynecological cases, 608. Uterine affections, 423. Of 34 were senile atrophy of the uterus.

Die Königliche Universitäts, Frauenklinik in München in den Jahren, 1884-1890. Berichte und Studien. Herausgegeben von Dr. F. von Winckel, Direktor der Klinik, Leipzig, 1892.

For 1886-1890 inclusive 986 patients in gynecologic portion. In 1884, 56; 1885, 128; 1886, 171; 1887, 163; 1888, 169; 1889, 202; 1890, 191. No cases.

OUT-DOOR SERVICE.

Jan. 1, 1885, to Jan. 1, 1886, 358 persons; 1886-1890, 2,185 patients treated; in 1886, 346; 1887, 394; 1888, 311; 1889, 433; 1890, 401. No cases.

Rendiconto delle Sale di Ostetricia e di Ginecologia (Anno Scolastico, 1882-83) dirette dal Dr. Giovanni Cosentino, Professore Pareggiato di Ostetricia nella R. Universita di Palermo e Ginecologo Primario dell Ospedale Civico. Redatto dal Dr. Giuseppe Giglio, Palermo, 1884. Consultazione Nell 'Ambulatorio Di Ginecologia. Treated 419 cases. No cases of atresia after menopause.

"Manual of Gynecology," Hart and Barbour, 4th edition, London, 1890, pages 266-267: "Atresia of cervix is rare as a *congenital* condition. It is more frequently acquired, and results from the following causes: Adhesion of granulations in cervical catarrh (after menopause) and round the base of tumors. The practical point for the practitioner to remember is that it occurs also as part of the physiologic changes which take place after the menopause; 28 per cent of women above 60 years of age have atresia of the cervix (Hennig)." Page 319: "Senile atresia of the cervical canal is the result of a localized chronic endometritis. This is one of the physiologic changes which occur after the menopause. In some cases, however, it becomes pathologic; accumulation of mucus, more rarely of blood, takes place above the obstruction."

"Diseases of Women," by Dr. Alfred L. Galabin, 5th edition, London, 1893. Page 80: "Acquired uterine atresia usually affects some portion of the cervical canal. It may also be the effect of cervical catarrh through adhesion of the granulations formed on opposite sides of the canal, especially when the passage is no longer kept patent by the flow of menstrual blood. It is not uncommon, therefore, in old women, espe-

cially when prolapse of the uterus exists." Page 82: "After the menopause the uterus may be filled by mucus fluid (hydrometra), a condition usually resulting from acquired atresia of the cervical canal. I have met with one instance in which the uterus became largely distended by pus in consequence of an atresia produced by cancer about the internal os. Advises operation."

"Treatise on Gynecology—Medical and Surgical," by Dr. S. Pozzi, New York, 1892, 2 vols. Vol. I, pages 532-533: "Acquired atresia. It may also follow the cicatrization of ulcers of the cervix coincident with senile atrophy of the uterus; finally, it may in old women, be due to a tumor in the cervix or lower portion of the body of the uterus. It may occur spontaneously in old age. The results of this obliteration vary as the patient has or has not reached the menopause. If she has ceased menstruation the lesion usually causes no disturbance unless some cause of septic infection exists in the uterine cavity, causing an accumulation of pus (pyometra) or gas (physometra). I have seen two cases of pyometra from cancer of the body of the uterus and fibroma in aged women. The treatment in such a case consists in incising or puncturing the cervix if it be necessary to disinfect the uterine cavity and then in meeting the indications called for by the existing fibroma or cancer."

"A Practical Treatise on the Diseases of Women," by T. G. Thomas, 6th edition. Enlarged and thoroughly revised by Dr. F. T. Munde, Philadelphia, 1891. Page 229 gives as a cause of acquired atresia, senile atrophy: "The atresia is so very common in old age that Hennig declares that out of 100 women who had passed 50 years of age about 28 (over a quarter) suffered from it. Results: It might at first thought be supposed that uterine atresia occurring after the menopause would be as it usually is before puberty a matter of little importance; but while this is so, but there are exceptions to both rules. In the old women a watery secretion sometimes takes place, giving rise to hydrometra; suppurative action may occur, creating pyometra." Advises operation.

"A Practical Treatise on Diseases of Women," by Dr. J. Thorburn, London, 1885. Pages 151-152: "It also occasionally happens that, menstruation having ceased, the occluded uterus continues to secrete a quantity of mucus fluid, more or less watery, which distends the organ, giving rise to the same physical signs as hematometra (hydrometra), and in still rarer cases this fluid is or becomes purulent (pyometra) or decomposes, giving rise to the presence of gases (physometra)." Advises operation.

"A Manual of Gynecological Practice," by Dr. A. Duhrssen. Translated by J. Taylor, F. R. C. S. and F. Edge, M. R. C. P., F. R. C. S., London, 1895. Page 85: "In old women an atresia of the internal os is found analogous to the kolpitis adhesiva. This leads to the collection of mucus or pus." (Hydro and pyometra.) Page 88: "Atresia of the internal os is treated by simply passing a sound or trocar through the obstruction."

"Practical Manual of Diseases of Women and Uterine Therapeutics," by H. MacNaughton Jones, M. D., M. Ch., F. R. C. S. I. and E., New York, 1884. Page 355: 1, causation; 2, acquired. The causes producing acquired atresia are: cervical endometritis, senile atrophy. Advises operation if hydrometra, etc.

"An American Text-Book of Gynecology—Medical and Surgical," edited by Dr. J. M. Baldy, Philadelphia, 1894. Page 55: "Hydrometra, which is more likely to take place in women of advanced age, is due to the retention of the secretions from obliteration of the canal."

"Landmarks in Gynecology," by Dr. Byron Robinson, Detroit, 1894. Vol. II, page 190: "Hydrometra—it is a condition of late life, when senile or other degeneration arise in the cervix."

"Hand-Book of Gynecological Operations," by A. H. G. Doran, F. R. C. S., Philadelphia, 1887. Page 338 gives Breisky's operation for atresia of the cervix.

"Diseases of Women," by Lawson Tait, F. R. C. S., 2d edition, 1886. Page 75, in speaking of hydrometra, says: "It is a condition almost entirely confined *ex necessitate* to women who have passed the climacteric period of life, and it very rarely causes the uterus to reach any great size, because the greater part of the secretion of the internal mucus surface is capable of resorption, leaving behind only the more solid elements of the mucus. Simpson narrates a case unusual for it, in which he drew off large quantities of serous fluid from the cavity of the uterus which had been distended to the size of that of the fifth or sixth month of pregnancy, the fluid being due to a cancroid tumor at the fundus. In such a case the symptoms would be severe and would necessitate a careful examination. The first thought would be to eliminate the possibility of pregnancy and then to open up the canal."

"A Text-Book of the Diseases of Women," by Dr. H. J. Garrigues, Philadelphia, 1894. Page 407: "Closure of the uterus (acquired atresia), but the uterus may also be closed later in life; acquired atresia. Although not so rare as the congenital form, the acquired is still a rare affection. Etiology: sometimes it is simply due to old age and is especially found in old women suffering from prolapse of the uterus. After the menopause the atresia hardly gives rise to any symptoms unless it is complicated with some other disease of the womb, especially cancer or fibroma."

"A Hand-Book of the Diseases of Women, Including Diseases of the Bladder and Urethra," by Dr. F. Winckel, of Munich. Authorized translation. Edited by Dr. T. Parvin, of Philadelphia, 1889. Page 462: "Among the numerous causes of these are advanced age." Page 465: "Or if there is a retention of the uterine secretion after the menopause, the uterine walls are sometimes thickened but not infrequently they are much thinner than usual." Page 471 recommends operation. Does not cite any cases.

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Lehrbuch der Gynäkologie, von Carl G. Carus, Wien, 1829. Vol. I, page 277, same as above.

Spiegelbilder der Gesunden und Kranken Vaginal Portion und Vagina, von Dr. J. Huguier, Wien, 1883. Page 179 mentions it as producing hydrometra in women after the menopause.

Die Frauenkrankheiten. Ihre Erkennung und Heilung, von Dr. R. Flechsig, Leipzig, 1885. Page 124, under stenosis and atresia of the uterus, mentions hydrometra as occurring after the menopause.

Frauenhrankheiten, von Dr. C. G. Rothe, Leipzig, 1846. Page 243: "Atresia due to senile atrophy of the internal os, is *not* pathological." Page 184: "Hydrometra occurs mostly in old women who, after the menopause, have atresia of the uterus."

Die Krankheiten der Frauen, von Dr. Heinrich Fritsch, Braunschweig, 1886, 3d edition. Page 191: "In old women cervical atresia occurs but seldom at the internal os. But here menstruation has ceased, so back of the atresia we have an accumulation of either mucus or pus." (Pyometra senilis.) Advises operation. (First edition translated by Isidore Furst, Wood's Library, 1883.)

Hand-Buch der Krankheiten der Weiblichen Geschlechtsorgane, von Dr. Carl Schroeder, Leipzig, 1890. Page 413: "Atresia, mostly of the internal os, we find in old women very often; Hennig found it twenty-eight times in 100 women over 50 years of age." Page 417: "With hydrometra the symptoms are not so intense, since the accumulation follows more slowly and the atrophic, non-functioning uterus in the dilation of its cavity is not answered by contractions." Advises operation.

Lehrbuch der Frauenkrankheiten, von Dr. F. Winckel, Leipzig, 1890. Page 359: "Cause, old age." Page 367: "If hydro- or pyometra, operate."

Compendium der Gynäkologie, von Dr. J. Heitzmann, Wien, 1891. Page 215: "In the climacteric, atresia of the internal os does not occur very often, only mucus accumulates with little or no pain. (Hydrometra senilis); contrary to this, mostly through gonorrheal infection a condition is caused, by which an intense muco-pus is found in the cavity of the uterus." (Pyometra senilis.)

Traite Pratique de Gynécologie et des Maladies des Femmes, par le Dr. L. de Sinéty. Deuxième edition. Paris, 1884. Page 330 quotes Hennig.

Manual des Maladies des Femmes, par A. Lutaud, 2d edition. Paris 1891. Page 36: "Uterine atresia is sometimes acquired."

Traite Pratique de Gynécologie, par Stéphane Bonnet et Paul Petit. Paris, 1894. Page 125 quotes Hennig; advises operation in case of hydro- or pyometra.

Le Malattie della Donna. Trattato Clinico. Completo del Dottor Malachia de Cristoforis, 2d edition. Milano, 1885. Page 359 quotes Hennig same as above.

The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, vol. XVIII, 1892, pages 188-190. "Osteomalacia," by Dr. D. S. Lamb: in the post-mortem of a case made for Dr. Mary Parsons, found this condition and others in which the uterus was 2.25 inches long; cervix normal, lips still well marked; abscess in fundus one inch in diameter, *distinct from uterine cavity*, filled with cheesy pus; wall of abscess thin, inner surface rough. Each tube ended along side the fimbriæ in a cyst with chalky wall and yellowish cheesy contents; the right cyst was one inch, the left one-

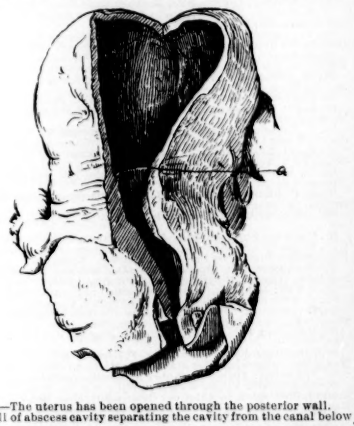

FIG. 4.—The uterus has been opened through the posterior wall.
A. Wall of abscess cavity separating the cavity from the canal below.

fourth inch in diameter. Ovaries atrophied, smooth. Some pelvic peritoneal adhesions. This is a case attended by Dr. Mary Parsons, the skeleton of which is in the Army Medical Museum, catalogued as No. 10,000, Pathological Section. Its entire weight is only two pounds and thirteen ounces. The patient was a white woman, single and about 69 years old at death, July 10, 1889. She had been sick twenty-six years and confined to bed about twenty-one years. The uterine specimen is catalogued No. 10,011.

NOTE.—June 25, 1895: The abscess cavity is the much dilated upper portion of the uterine canal, separated from the lower patulous and normal portion by the boundary wall of the abscess cavity; in other words, there is atresia of the canal, caused by the formation of the abscess cavity wall as shown in the diagram. D. S. LAMB, M. D.

(I would suggest that in the above-mentioned case the atresia was not produced by the abscess, but on the contrary the abscess was produced by the atresia. H. L. E. J.)

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CONCLUSIONS.

From what has appeared above we may draw the following conclusions:

1. Pathologic atresia of the uterine canal after the menopause is a condition which exists more frequently than is usually supposed, produces symptoms which have not been thoroughly appreciated, and may lead to error in diagnosis in some cases.

2. The subject has not been carefully studied, or correctly treated in the past.

3. The symptoms mislead by directing attention to the nervous system more particularly than to the true seat of disease.

4. Atresia, or more correctly speaking, obliteration of the uterine canal, is a physiologic condition, only after complete atrophy of the body of the uterus and its endometrium.

5. The uterus, during the menopause, and until completely atrophied, should be kept under careful observation, all inflammatory, catarrhal, and other abnormal conditions treated and cured, and the canal kept pervious by the passage of a suitable sound to facilitate drainage.

6. All cases of atresia of the cervix, where complete atrophy of the uterus has not taken place, should be operated upon at once, even in advance of symptoms.

7. Operation is beneficial by preventing or relieving distressing symptoms, and is absolutely free from danger when performed with modern surgical precautions.

8. Many obscure symptoms occurring during, and after, the menopause, are produced by retention of fluid and *débris* from atresia of the cervical canal, which can be promptly relieved by the treatment advised.

9. This subject is of the greatest importance and deserves a thorough investigation by the medical profession.

PECULIARITIES OF COLOMBIAN LEPROSY.

BY ALBERT S. ASHMEAD, M.D.
NEW YORK.

Leprosy in Colombia dates from very remote times, though no light is thrown over its origin. According to Father Velasco, in the middle of the last century a lazaretto was founded in Cali.

I find in an article of the *Anales de la Academia Nacional de Medicina*, Bogota, 1894, under the signature of Dr. Alfredo Garcés, several points which represent Colombian leprosy in a rather peculiar manner.

1. According to the information obtained from patients, and the opinion of the Doctor himself, the disease originates mostly, if not always, in a cold; exposure to rain, sudden cooling after strong perspiration, sojourn in damp rooms, especially during confinement, bathing in a brook being heated, passing from a warm climate to colder altitudes, etc. These accidents are all followed by the wheals of urticaria. From the urticaria, leprosy is developed. Most of the patients attribute their malady to a cold. Some say that they went out into the cold air; that they have been exposed to a draught, to a shower; that they have gone into the water while heated. One of them said to me: "I was sleeping in the evening; I was awakened suddenly and went out at once, heated and perspiring, into a cold hallway; I got a spasm

(urticaria); my skin thickened and my blood was corrupted." Another said: "While pregnant I lived in a damp room and was caught by a shower in crossing a courtyard; in the night my body was covered with wheals, I had fever and my blood was corrupted." Another said that she was grinding chocolate, and that she wetted her hot hands; that the hands thickened and were benumbed and that she got wheals. Another, on her way, bathed in a brook, being much heated, and from that time she had thick feet and wheals. One was a laundress, another a baker, another tapped liquors, etc. In others the primitive cold is not discovered, but they have lived in contact with elephantiasis, or in rooms which had contained it. Thus we see a mother and two sons affected; a father and three sons; two mothers each with her daughter; uncles with nephews. One goes to the Valle del Caucas; he catches typhus there; he returns to Popayan and leprosy appears. Another goes to the Valle del Patia; he returns to a cold climate and becomes a leper. Others take a bath in Cauca or in Piendamo with their bodies heated; wheals come and the disease appears.

2. In the general pathology of Colombia, scrofula is very common, "as common as tuberculosis is rare." Dr. Garcés says that he can affirm, surely not to exaggerate, that there is not in Colombia a family in which there is not at least one scrofulous individual. In no place did he see so many strumous tumors of the neck, axilla and groin.

"The gnawing lupus," says Dr. Garcés, "of slow and invasive march, appears frequently in its most alarming forms. I have seen three patients in whom nearly the whole face had disappeared under the action of scrofulous ulcers; in another, the whole knee and part of the leg; in another, the face, the elbows and the neck had been invaded by lupus. In the feet, in the legs, etc., are observed affections not unfrequently, and in a practice of six years I have observed not less than twelve lupi gnawing, most of them in women. As to dermatoses of scrofulous nature, it is difficult to find a place where they are more frequent; eczemas, impetigos, purpura, breakings out on children's faces, acnes, are frequently observed. Anemia and the lymphatic temperaments, with thick lips, stout and colorless forms, epistaxis, hemophilia are met at every step; in one word, scrofula reigns in Popayan, and its environs, as reign the paludic fevers in our heated lands (*terras calientes*), cholera in India, and yellow fever in New Orleans."

3. Garcés, while admitting the microbian theory, confesses that there is not one fact in support of it which might not be explained in some other manner.

4. Leprosy is a disease of the nervous system, not engendered by microbes, followed by vasomotor disturbances, offering in a certain state a desired habitat for the bacillus, and afterward, susceptible of being propagated by the same microbe. "We do not mean to evict the parasite from its domain, nor to deny its morbigenous action. We want only to establish this clinical fact: leprosy is a disease of the peripheric nervous system, which reaches the superficial nerves of some mucous membranes, through anatomic relations. We can not be surprised that leprosy, being a disease of the nervous system, makes itself known chiefly by cutaneous lesions, for we see many of its affections accompanied by zona, pemphigo, trophic lesions, glossy skin, patches of anesthesia, etc."

5. In Colombia, scrofula is very often mistaken for leprosy, but the total absence of nervous disturbance is sufficient for the physician to make the right diagnosis.

6. "There remains a disease rather common in Popayan which fills the public with terror, and gives to the subject the appearance of a leper; it is characterized by atrophies and reabsorption of the phalanges of some fingers and toes, by deformations, more or less important, which sometimes give to the extremities the form of a spider, of a claw, of an onion head, pes varus, globular in form, etc., mutilations which present zones of anesthesia and analgesia in distinct points of the extremities. The lesions affect a certain symmetry and never pass from the foot, from the hand, or from the forearm; in no other part of the body is there observed anything abnormal, and those who suffer of such affection live long years without their disease advancing or generalizing itself. They attribute their condition to a cold taken in their feet or hands when the body was heated. I am not unaware that some of these subjects have become leprous afterward; but from this fact to the declaration that all do the same, there is a wide distance; patients like those of whom I have spoken are not lepers for me, as long as the microscope does not show in them the trophic lesions due to the bacilus of Hansen." Here is a case in point:

DYSTROPHY OF EXTREMITIES.

M. P., aged 34, presents in the cheeks and on the forehead a rubicund color, and at that level the skin is rather thick. Neither in the ears, nor on the face, nor in any other part does it show tubercles nor even spots. On the arms there are broad spots of a yellowish pink. The right hand presents the following anomalies: the interosseous muscles and the abductors of the thumb are in great part atrophied; the finger is almost without phalanx, and of the nail there remains only small fragments of the lunula; the finger seems thickened in its free extremity, looking like an onion's head; over the annular and middle fingers there is a pink spot, covered by some epidermic scabs, and over the nail of the middle there are well pronounced ulcerations; the annular and the little finger show a slight retraction of the flexor muscles of the phalanx; the hand presents in general the undulated aspect, perceptible in subjects who have suffered for some time of paralysis agitans. The left hand has suffered the same atrophies as the other; the thumb has its phalangine retracted, while the other fingers are turned toward the back of the hand in their first phalanges, and doubled, claw-like, in the others, looking like a tiger's paw.

In the inferior extremities there are callous patches in the anterior extremity of the metatarsians, where there exist also some pink spots, as well as in the trunk. Points of anesthesia are not observed, except in the superior limbs, especially where the skin is a little callous, as is the case in the inferior extremity of the metacarpians; the left hand is almost useless, as it can not hold small objects, and, in general, its touch is imperfect [1].

"M. V., 22 years old, was grinding chocolate, got wet, and from that moment felt his hands benumbed, and pains with swelling in the feet. He has on his body neither spots or tubercles and his brows are intact. He has now four fingers of the right hand twisted and partly atrophied; in the left, the lesions are similar, but less pronounced; he feels much dryness in the hands and slight ulcerations are visible on the fingers. On the right foot he presents toes—the first and the last—much retracted, while the others are raised; the skin in that region is thick; in the left these lesions are less pronounced; but it shows cicatrices of old lesions. Sensibility is very obtuse in the feet." (Garcés.)

7. We come now to the essential point of leprous diagnosis. Is it a parasitic disease? All the micrographers answer affirmatively; but it must be observed that in various cases of anesthetic leprosy the

[1] This man has been ill for twenty-two years and offers no other symptoms, but those mentioned in this observation.

leprogenous microörganism has not been discovered. (Cornil and Babés.) I do not know whether in Colombia the microphyte has been found in our patients, and, in spite of that, I doubt no wise of its existence. I believe that in most lepers the bacillus of Armauer Hansen exists; but I am very far from thinking that the same is the initial phenomenon, the agent *sine qua non* of leprosy. What, then, opens the play? In my opinion the same thing happens with leprosy as with pulmonia, typhoid and other microbian diseases. We live in close contact with them, we take them in our aliments and drinks, we carry them in our clothes, and we respire them continually, and in spite of all that, they do us no harm; unless some external cause puts us into a condition to be influenced by them. In pulmonia and typhoid fever there is a perfect relation of cause and effect which is very well explained by Friedlander's and Eberth's microbes, but it is not the case in leprosy.

The initial phenomena is a vasomotor paralysis, a shock to the peripheric nervous system, which prepares it for receiving the microphyte encountered in leprosy, but which alone does not constitute the disease. The latter may exist, in the anesthetic form without microbes, and perhaps likewise in the initial stages of the other forms; in all, the nervous lesion and the local circulatory disturbance precede, and when these exist the microbe establishes itself, as a swarm of bees alights in the hollow tree which can contain them. The microbe once admitted, helps to foster the disease, the nervous lesions continue being produced, new colonies appear and help the leprosy forward.

"We are induced to make this observation by the following consideration: the leprous microbe is of difficult cultivation, but once cultivated it develops with a rapidity which is in strong contrast with the slowness with which it works in animal economy. On the other hand, the microbe must die in a short time, whenever its development is rapid. Nevertheless, Cornil and Babés affirm that after having been separated ten years, a fragment of leprous skin was found to contain living bacilli, which is contradictory to their rapid development, unless we admit that, after desiccation, the parasite can remain asleep, like the bed-bug and exists in a latent state for an indefinite time; but such is not the case in the organism, and that is all we have to consider.

"Why does the organism invaded by myriads of microphytes wait so long before it announces their presence? In our opinion, because the soil is not equally well prepared; the affection begins in the territory of certain nerves; it propagates itself, and as long as the nerve is not diseased the bacillus does not establish itself in it; so it goes on spreading, until it reaches a number which can not be contained in the tract of the nerves and in the affected regions; the circulation then takes it up, transports it into all the organs, and the disease from local becomes general. Thus we see that lepers who had lived many years without suffering great pains, nor lesions of rapid progress, suddenly, unexpectedly, present alarming symptoms, which, in a few days carry them to the grave.

"In short, leprosy is a microbian disease, but whose primordial symptoms and lesions are localized in the nervous system and independent of the microbe *sometimes through life*. It is possible to carry the bacillus of Hansen, without being a leper, and *vice versa*, there are lepers without bacilli." (Cornil and Babés.)

8. "The microphyte," says again Dr. Garcés, "has a very long existence and a power of resistance which protects him against the ordinary climacteric influences. Spread in such profusion, it must, no doubt, surround us everywhere, and if it has not as yet been discovered in the atmosphere, it is because it has not been sought there, and because it is not known well enough. In a land of leprosy we carry all about us the germs of the disease, and all we have to do, is to beware from making ourselves an appropriate soil for it. The contagion can be made by the intermediary of the tainted objects carried by the lepers; but without aptitude for contracting the disease, there is no contagion. The leper will infect us, if we are prepared for that, as the air would do, or any other object conducting the microbe; but without lesions of the peripheric nervous system and of circulation or to speak more clearly, without an entrance door, the disease is impossible. Leprosy, therefore, is a disease which can be caught by contagion, or by contact with lepers, or without it; it is enough to be apt to receive the microbe, which may be caught wherever it is found, and even be carried on the body for a long time.

"An instance is the case quoted by Barber, of a person operated on for a small sarcoma of the face, in which the microbe was discovered, who, in consequence of this operation, became a leper.

9. "Contagion is not common and general, as in smallpox, scarlatina, measles, etc., because these diseases need no initial local lesions; the whole organism is their theater and they find it prepared; for this reason the individuals who escape them are rare. *In leprosy the local lesion is indispensable, and as it is only rarely produced in the required condition, contagion is rare.*" (Garcés.) (Italics my own.)

10. "Heredity of leprosy can not be admitted, unless the disease is admitted as a nervous disturbance; as a microbial disease it has no existence." (Garcés.)

11. Prophylaxis: avoidance of intercourse with lepers, especially those who have reached an advanced stage of the disease, and more than everything else to avoid living in closed places where lepers have resided, and using furniture or other objects which have belonged to them. A guitar, a leprous dwelling have sufficed once to infect almost a whole family. Insects may transmit the disease: bugs, flies, pulex penetrans, baths, beds, etc.

"A young lady of the Department of Santander, traveling with her parents, slept one night at an inn in the same bed in which some nights before a leper had slept. The bed-bugs pricked the young lady that night, and all the prickings were converted in a short time into lepromas and leprous ulcers. The young lady was seriously ill and died in less than a year with all the symptoms of leprosy perfectly characterized." (Garcés.)

Disinfectants do little harm to Hansen's bacillus, but microbicides like camphor, corrosive sublimate, etc., may be used with advantage to wash contaminated clothing and hands.

12. "In places where leprosy is at home it is necessary to avoid the quick changes of temperature which might stop perspiration; such are, baths in very cold water, being tired, draughts of cold air when coming from a hot room, or when just awakened, or coming

from a dance, or from the neighborhood of a baker's oven or from the ironing board. Don't live in damp places, especially during confinement or any other illness, for experience teaches that after a confinement women predisposed to the disease, acquire it easily, and the same is observed in convalescence from grave diseases, as typhoid, dysentery, etc. We have instances of all these circumstances. It is of the highest importance not to change when you come tired or perspiring from the street, and you must not even enter the rooms before you have arrived at an appropriate temperature; it is better to wait in the hallway." (Garcés.)

13. "Sudden changes of climate in a person already affected by the disease, only precipitate its development, and for that reason travels to *terra caliente*, which are often undertaken by lepers, benefit a few months, that is, as long as they are in the hot country, and exacerbate the disease when the patients return to a temperate and damp climate, like that of Popayan." (Garcés.)

14. "Whatever may be alleged on the other side, sequestration of the lepers is a necessity—for two reasons: the first is that the leper himself flees from a society which hurts his feelings by its loathing and horror; and the second, is the duty of every civilized government, to guard the interests of the community, of which the most important is health. All civilized nations have been alive to this. Leprosy is contagious, contagion is effected by microbes which the leper throws off in his dejections, discharges through his skin, and scatters everywhere, wherever he lives. This fact is sufficiently proved, and requires rigorous measures." (Cornil and Babés.)

But sequestration must not be used by half; to isolate a leper in his own house, in the midst of his family, is only to gild the pill to hide its blackness, without diminishing its effect, and makes us suppose one of these two things: either the nature of the disease and the last observations on it are unknown, or that an official sanction is necessary in order that the sick people continue to live isolated in their houses, as heretofore, and are thus allowed to maintain among the population, centers of infection. On the other hand, to condemn an individual to live cooped up in a room, breathing bad smells and an atmosphere vitiated and infected by those same germs which he discharges from his body, which continually penetrate anew into his organism, and aggravate his condition by auto-infection; to deprive him of exercise and free air is a thousand times worse than to sentence him to the galleys, or to the obscure dungeons of Carthagena.

The isolation must be social, not individual, effective and not fictitious, for pity's, duty's, policy's and hygiene's sake, the lepers must be removed from the towns, but provided with all the accommodations required by their condition. They must be considered as sick persons, not as proscribed individuals. They ought to be established in colonies, with hospitals and all the means of living; they must not be disseminated but concentrated in localities where they can work and live in society, without being wounded by the talk of the vulgar, by the repugnance and loathing of friends and acquaintances; in one word, it is necessary to create for them a medium in which they will not be continually provoked to curse their fate, and where their lot will not be made more bitter than it is by itself. It is not at all inhuman to thus isolate them; it is to give them the greatest boon which they can enjoy; it is to give them liberty, of which they are deprived in our society surrounded by suspicious eyes, victims of cruel speeches, in which the wretches are represented as monstrous beings, engaged in actively communicating to their healthy brothers the horrible plague with which they are stricken, and as guilty of actions so atrocious that the pen refuses to write them down." (Garcés.)

15. The following may give the reader an idea of the way in which this terrible disease affects the feeling of the general public: "Hygiene also commends this measure (isolation); 1, to protect society against a danger which, however far off it may seem, is too terrible to be disregarded, jeopardizes many interests, and is a permanent menace to the people; and 2, because the leper needs air, exercise, liberty, work, tranquillity to lift up his spirit, and removal from all that reminds him of better times and shows him too glaringly his horrible situation. The choice of the site and the regulations for the colony must be carefully considered, so that neither the lepers nor the public have cause for complaint. Each department must have its leper colony well provided with all the necessaries and perfectly regulated.

"The lepers, far from being afraid to leave society, will under these circumstances desire to do so, and although their disease will remain, they will have a more tolerable existence than that which they have now, and we shall in this manner stop and cut by the root, a plague which threatens our children and which would put hundreds of families into mourning. Yes, there should be no hesitation. When you least think of it, leprosy may knock at your door, and with or without your consent, cross your threshold. A young, bright lady, 14 or 15 years old, the flower of the family, the mirror in which the father and brothers see themselves, the joy of the whole world, an image of candor and innocence, coming back from a visit, changes imprudently her attire, catches cold, to use the common expression. She soon is covered with wheals, feels her limbs grow heavy, her ears itch and soon begin to swell; reddish or speckled spots invade her lovely face. And now old women's medicine galore; physicians also are consulted, the recommended climates are visited, and, in spite of all that, the spectre pursues her course, he grasps his victim with both arms, consternation spreads in the family; society avoids the victim; slander prepares its arrows, and a hell of horror and suffering succeeds to the gaiety and to the fond illusions of past times. And that is not all; the charming young lady who is the sister of the victim, her interesting brother, are looked at askance, the families shut their doors upon them, nobody will have any relations with a house in which there is a leper; the servants flee, business is paralyzed, sadness and despair reign absolute until comes the moment of separation, if isolation is imposed. To depart! and to depart forever! To become an outcast! To drag out a life of privations, wounded to the very depth of the soul, having no consolation but God; no hope but eternity; exhausted by physical sufferings and tortured by the remembrance of those who were her own, and to whom she leaves a stigma of malediction. It is horrible! It is heartrending! Can such a thing happen in a civilized land, in a Christian society? Can we remain impassive before such a spectacle? And how can we throw such an anathema on the

future generations? Let us cut the evil without hesitation, for we can cut it.

"The lepers who now exist are all Catholics, capable of bearing pain, full of resignation, sufficiently courageous, and virtuous to immolate themselves for their brethren, and suffer alone, the horrors of such a life as has fallen to their miserable lot. All of them will be ready to leave their domestic hearths, when they think of the interests of future generations, and of their own families." (Garcés.)

16. Dr. Garcés recommends the extraction of the tuberculous lepromæ or galvano-cauterization.

CONCLUSIONS.

The most important point which I find in Dr. Garcés article is the fact vouched for by him that leprosy not only very often is not accompanied by bacilli, in its first stage, but that the disease may run its whole course without any microphytic influence or presence. Here again the autochthony of leprosy is raising its head. It seems quite rational to admit that in certain moist climates a condition of nerves is produced, a polyneuritis which results in dystrophia of the peripheral tissues. This would be a quite intelligible origination of the disease. The occurrence of urticarial wheals would imply peripheric nervous disturbance as the very first symptom of leprosy, whether the disturbance be the result of cold, or of some infectious action on the skin, either sound or broken.

The appearance of the bacillus by inoculation directly or through a host, marks a second definite period of the disease. In lupus we have the same trophic loss of tissues as in leprosy, and the bacilli of the two diseases are not distinguishable except by this circumstance, that the leper bacillus is gregarious, while the other is more individual. The microbes presenting themselves so differently may differ in a similar way in their action; this would explain the resemblance which exists certainly between these two diseases, and also the difference. I should think that leprosy and lupus are the same disease with a difference.

FIRE-PROOF ASBESTOS SURGICAL DRESSING.

Read before McKean County Medical Society, Pennsylvania, Oct. 1, 1895.

BY EVAN O'NEILL KANE, M.D.

KANE, PA.

I desire to present for your inspection a number of asbestos materials such as are commonly used in the arts, and to show you how admirably fitted they are to serve as surgical dressings. Their softness to the touch and glistening silkiness of appearance commend them as being unirritating to the skin and soft and cleanly as a covering. I hold that on account of their indestructibility when subjected to high temperature they are the only materials which, as dressings, can be rendered absolutely aseptic, while at the same time the variety of forms in which they can be manufactured enables them to fill all the requirements for which cotton fabrics are used in surgery, and with more satisfactory results.

Appreciating the difficulty one is under in preparing dressings that shall be positively aseptic, and of retaining them so for any length of time, it had always been my custom to have them all thoroughly impregnated with bichlorid of mercury, iodoform, or boracic acid as shortly as possible before using them. This procedure entailed much loss of valuable time and when operating in accident cases at a distance from my hospital I was always in dread, lest, during transportation to the scene of action or after being spread out among the flies and dirt upon the table of the farmhouse, or lumber shanty, or upon the cushion of a cabin car, a new horde of germs find entrance to them. I am, therefore, satisfied that my present method of only using fire-proof dressings, beside saving much valuable time is the only safe one to pursue, and the results which I have obtained since making use of them have more than justified me, I am sure, in so believing.

Asbestos dressings of all kinds can be kept as carelessly as if they were germ proof. They may be carried in any parcel, paper bag or hand satchel, may be handled by dirty hands, may be spattered with blood, matter, the ejecta from the stomach, or any sort of filth; might be literally crawling with all the worst forms of germ life and yet can be rendered absolutely pure in less than two minutes by tossing them upon the coals or into the blaze of an ordinary kitchen stove or fireplace.

My custom is now to carry with me in my buggy case a compact parcel (asbestos materials are very compressible) containing a sufficient supply of dressings of every sort, necessary to meet the requirements of general operative surgery. When preparing for an operation, I lay out upon a table, board or chair, the amount and sort of asbestos material which I expect to use. When the operation is completed and I am ready to apply the dressings, I instruct my assistant to place them upon the coals or in the flames of the nearest stove or fire and allow them to remain there a few moments, usually until they begin to assume a cherry red, and then remove them with a tongs, fork or whatever else is convenient and spread them out beside me on a clean napkin or piece of paper. Then I dust them with iodoform, aristol or other antiseptic powder, should such be desired, and, as they cool rapidly, proceed at once to apply them to the wound.

When working in my operating room I have a specially constructed receptacle made of wire netting, not unlike a griddle, in which to retain the dressings while subjecting them to heat. I find this unnecessary and cumbrous, however, to carry with me about the country, observing that an ordinary tongs or toasting fork answers the purpose.

Asbestos goods are now manufactured in such a variety of forms that even from a country hardware store the surgeon can supply himself with the materials necessary to dress every kind of wound or injury.

The form of asbestos most largely used by me as a dressing, because most nearly like absorbent cotton of any of the preparations made from asbestos, is asbestos fiber. It is the same substance which is used to make luster in the back of fireplaces. This material is as soft as floss silk or eiderdown, and its absorbent properties are much greater than those of absorbent cotton, an advantage which, aside from any other, recommends its use. The only objection I have yet found to it is that its fiber is not as long as that of cotton, yet after all in many respects this is an advantage. When thoroughly saturated with fluid, the surface of a mass of this material becomes as slippery as soap, a condition which I can not explain, as it is insoluble, but this certainly enhances its value as an application to sensitive surfaces, such for in-

stance, as the inside of the orbit after the removal of an eye, or to the anus after an operation for hemorrhoids. It is certainly the very best substance to apply as a first dressing after laparotomies, or as a covering to the stump after amputations.

Next among the asbestos materials in usefulness will be found asbestos paper, or felt, as the manufacturers call it, which can be purchased by the yard for little more than ordinary wrapping paper. It is manufactured in various thicknesses, from that of newspaper up to that of the heaviest binder's board. Its quality also varies greatly, the texture of some being much smoother than that of others. This paper may be made use of for bandages by cutting it in long strips of the desired width and length; for light wrapping paper it is sold by the pound in rolls of any length desired. Such bandages are not strong enough to stand a great strain, as muscular contraction or the retention of a heavy weight, but will answer all ordinary purposes as a means of retaining dressings in position. They are well adapted for holding inner dressings in place and wherever an aseptic bandage is necessary. Being in fiber not unlike strong parchment paper, these bandages are more easily removed by the scissors than are those made by cotton cloth. It is also useful in most instances where absorbent lint or gauze generally find their place. It will prove valuable as an application or covering to raw surfaces, such as those of open granulating wounds. Its texture and tendency to become slippery render it unirritating, while its absorbent properties, which are equal to those of the best blotting paper, enable it to take up and carry away discharges and exudations which under rubber tissue, lister protective, wax paper or waterproof material would be retained. For dressing wounds, I generally lay it directly upon the raw surface without previously dusting it with any antiseptic powder, in order to retain its full value as a non-irritant, it being already aseptic, and if there is much exudation I cover it with a layer of asbestos fiber which I dust thoroughly with iodoform or boracic acid. By this means the discharge from the surface beneath being rapidly absorbed through the paper which has no irritating antiseptic in it, is completely taken up, carried away and disposed of by the overlying layer of fiber which, containing as it does an antiseptic among its meshes, prevents decomposition taking place.

Asbestos wicking, packing and cord which are sold by the pound in rolls or balls are all admirably adapted for drainage tubes or wicks. They are soft, pliable and smooth, slippery when thoroughly wet, and very absorbent. I use them largely as a packing for abscess cavities and have found them answer admirably as a wick packing in the excavations left after the removal of dead bone, as within the shaft of the tibia, etc. In such an event they should be thoroughly impregnated with iodoform or boracic acid and fed into the cavity with a dressing forceps, in the same manner as in tamponing with absorbent gauze. They will be found to fill more closely every interstice and with much greater ease of application than the latter. They are also more absorbent.

As an aseptic sponge or swab, I have not given asbestos a thorough trial as yet. The fiber, however, takes up moisture so readily and is so smooth and slippery when wet that I believe, were it made in little bunches covered with asbestos cloth, in the same manner that we now make cotton or wood wool swabs, it would be found most serviceable as a sponge, one which could be relied upon and absolutely free from septic material.

Asbestos cloth, as at present manufactured, is too coarse for surgical uses. I see no reason, however, why it can not be made sufficiently fine to answer all purposes for which cotton cloth is now utilized. It would be found softer, more absorbent, and less likely to adhere to raw surfaces.

My method of application of asbestos dressings does not differ materially from that resorted to in applying those ordinarily used, except that on account of their greater absorbent properties, they can be retained in position for a longer time without fear of sepsis or the collection of discharges about the surface of the wound.

I will not enter into the details of my *modus operandi* in the application of these dressings, making use of them as I do, precisely in the same manner as of other materials for the same purpose.

It is not my wish to urge the superiority of asbestos dressings either on account of their soft, unirritating texture or for their remarkable absorbative power, but simply because, as I have already pointed out, they are more readily, more rapidly and more certainly rendered aseptic than any other dressing materials.

I have recently made use of asbestos materials largely, both in my hospital and outdoor practice, having applied them to a great variety of wounds among which were laparotomies and various other capital operations. In all cases the dressings were first subjected to great heat, usually until their edges became incandescent, before they were applied. Frequently, it was not considered necessary to impregnate them with antiseptic powder, but in all cases the results proved equally gratifying. Much time and annoyance in preparation heretofore necessary has been saved; a hot fire being always within reach. When attending patients in the country I have, a number of times, re-dressed with the same dressing when by some neglect new material had not been brought with me for the purpose. It only became necessary to wash them thoroughly to rid them of the more tenacious of the discharges and to then subject them to a cherry red heat to restore them to purity. Repeated heating, however, seems to injure the pliability of the fiber, rendering it friable. Still to the country surgeon, there is an advantage sometimes in being able to use the same dressing more than once, even if it is not as silky after its second heating.

It must be admitted that asbestos materials, roughly manufactured as they now are, chiefly for the use of builders and mechanics, do not look as attractive as our snow-white surgical cotton, absorbent lint and the like. Yet if Keen, Morton, Parke and other leading surgeons were to become convinced of their superiority, the makers of surgical supplies would soon manufacture a line of them which would in every respect be superior to the ordinary cotton dressings now in use.

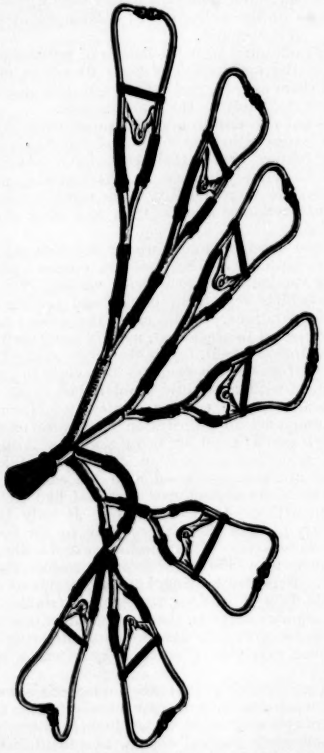
Sterilization of Catheters.—A new apparatus has recently been demonstrated, depending upon the action of the vapor of formalin. Sterilization is complete; the instruments remain aseptic so long as they are kept in the apparatus; gum, silk and metal catheters and a cystoscope were so treated and remained uninjured by the process during eight months, and no irritation of the mucous membrane of the urethra resulted.—*Therapeutische Wochenschrift*, Oct. 6, 1895.

NEW INSTRUMENTS.

A MULTIPLEX STETHOSCOPE.

BY A. M. CORWIN, M.D.
CHICAGO.

In the February number of the JOURNAL I described a double stethoscope which I have employed during the past three years for class demonstration of physical diagnosis in Rush College. In a later number of the JOURNAL, Dr. H. A. Hare, of Philadelphia, described a multiplex stethoscope upon the same principle, but using tubes long enough to allow some sixteen individuals to listen at once.



The double stethoscope makes possible the accurate demonstration of sounds which both instructor and student hear together—a multiplex stethoscope, if properly constructed, not only has this in view, but more, in the saving of time. I have devised a multiplex stethoscope as represented in the accompanying cut, kindly furnished by Sharp & Smith, of this city. I first experimented with long tubes. A semicircle of twelve chairs, placed side by side, will bring a patient at a radial distance of about five feet; while the ordinary sounds of the heart and of normal bronchial breathing can be fairly well heard through this length of tubing, the less distinct sounds, as those of vesicular breathing and most of the adventitious sounds, râles, etc., are but poorly transmitted.

After trying several shorter lengths and lessening the number of listeners, I have found that two feet is about the limit. Tubes of greater length than this do not satisfactorily carry many of the sounds perfectly accessible to the ordinary stethoscope, and are therefore not applicable in the construction of a practical instrument for the class room.

The instrument here represented will accommodate six students seated in a semicircle close about the patient, who, if occupying a revolving seat, may be rotated as desired to make all parts of the chest conveniently accessible. The demonstrator stands behind the patient and by a seventh stethoscope, connected at right angles to the main chest piece, is enabled to listen with the others and to manipulate both instrument and subject. When the ear pieces are all in place there need be no handling of the apparatus by the students. Necessary questions are readily heard and answered without the removal of ear pieces, so that there is no more difficulty in avoiding extraneous friction sounds than in the use of a single stethoscope.

As to the size of the tubes used, all stethoscopes should be constructed so that the internal caliber of ear pieces and main arms of the instrument is about that of the external auditory canal, as exemplified in the ordinary Knight's stethoscope, after which the metallic arms of my instrument are patterned.

In my experience, no better results can be obtained by a larger caliber than this. If the caliber is smaller, there is to my ear a decided decrease in the distinctness with which sounds may be heard.

Short pieces of stiff rubber tubing are used in connecting the metallic parts of the multiplex instrument. The distance from the extremity of the chest piece to each ear piece is about 22 inches. Further than this the relations of the parts is too obvious to need description.

SOCIETY PROCEEDINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Seventh Annual Meeting held in Chattanooga, Tenn.

(*Continued from page 960.*)

DR. WILLIS F. WESTMORELAND read a paper on REPORT OF CASES; *a*, TRACHEOTOMY FOR FOREIGN BODIES; *b*, CYSTOTOMY FOR STONE.

He reported twenty-seven successful operations for foreign bodies. In all the first ring of the trachea was cut and the opening enlarged down as necessary. Operated as early as possible. The external incision was made large. Muscles were separated, the fascia divided, vessels were ligated, so that no forceps were in the road. If necessary the isthmus of the thyroid was divided and ligated. No tenaculum was used in the trachea. Instead of trachea forceps, the opening was held open with silk introduced with a needle having no cutting edge. The foreign body was not probed for, but if necessary the wound was left open, in one case (cockle bur) for three days. The mucus will sometimes prevent closure of the wound. In closing the latter, the tissue under the mucous membrane is brought together with silk, using a needle having no cutting edge and the Halsted or mattress suture. Thus the layers were all brought together. In cystotomy for stone, he avoids rectal dilatation. Hydrostatic pressure is used to distend the bladder, raising the water two feet. This causes the bladder to bulge through the opening. No tenaculum is used to steady the bladder, but it is held with two artery forceps, between which the inci-

sion is made as high as possible. After removing the stone and flushing the bladder, the opening is closed with the Halsted suture and the closure tested by raising the water (an instant) three feet.

Dr. G. A. Baxter indorsed the position of the writer, but was attached to the medio-lateral operation. Stone is rare in this section, there not having been a dozen operations in fifteen years. The trouble is more frequent in Middle Tennessee.

Dr. J. A. Goggans related a case in which the larynx was almost occluded at the site of the thyroid cartilage by a new growth, so that he had to operate rapidly to save the patient. Throwing the head back increased the difficulty of breathing, and the head had to be held forward and the larynx steadied with the tenaculum. He said that suprapubic cystotomy was the operation *par excellence* for stone. He was prejudiced against the low operations, as he was once called on to sew up a large fistulous opening between the bladder and the rectum in a case sent him. He had attempted to sew up the opening by silkworm gut, operating through the rectum. At the third operation he had divided the sphincter ani muscle and almost closed the fistula.

Dr. W. E. B. Davis said that he was glad that both operations were fairly considered. The results of the older surgeons were good. They performed the low operation. He found that statistics of the suprapubic operation were bad, because bad cases were selected for the operation. A distinguished surgeon had so operated in a bad case to save his statistics for the low operation. This shows how statistics can be doctored. He thought it well to leave the wound open for drainage, for there is always disease of the bladder and we may have a new stone in a few weeks.

Dr. R. J. Trippe said that his experience was limited to a few cases operated on for disease, and advocated leaving the wound open for drainage. As a guide he used a sound. Did not fill the bladder with water, but washed it out before the operation. In tracheotomy, he uses long scissors forceps and does not stop to ligate the vessels. These held the wound open and saved an assistant.

Dr. Westmoreland, in closing the discussion, said that time was an important item, but that we had two minutes after the child quit breathing, for he could be resuscitated after that time. He advocated cutting high in suprapubic cystotomy as the bladder was near the surface, being quite deep at the pubis. The tenaculum was avoided, as the urine might be voided through the small opening. The buried silver wire was used, owing to the fact that it took several weeks for muscular tissue to unite and no other suture would last that long. According to Gregg-Smith, without this suture 20 per cent. of cases of laparotomy had hernia.

It would make no difference if the peritoneum were cut in the high operation. In these cases the wound was not left open, as they were not cases of disease.

Dr. J. A. Goggans, of Alexander City, Ala., read a paper entitled: "Early Diagnosis and Vaginal Hysterectomy in Cancer of the Uterus," dwelling on the importance of prophylaxis, early diagnosis and early operative treatment by vaginal hysterectomy.

Dr. A. R. Robinson, of New York, read a paper on

THE TREATMENT OF MALIGNANT CUTANEOUS EPITHELIOMATA.

In cases where the diagnosis is not positive, iodids and mercury should be used. The elements extend much further than is generally supposed, when they are excised, pathologic cells are left and we have so-called recurrence which is really a reappearance, when the wound has been treated antiseptically. Suppuration should be encouraged, as the toxin of the pus is more destructve to the epithelioma cells than the erysipelas toxin. He opposed cutting and advocated the use of causties. The toxins had cured no cases, though some may have been benefited. The caustic should destroy the tissue quickly and thoroughly. Mild causties, as nitrate of silver, should not be used. Caustic potash liquefies the tissue as much as would be removed with the knife; beyond this there is an inflammatory exudate which destroys the pathologic elements. The cancer cells may extend deeper than could be reached with the knife; here the potash is preferable. There is less deformity than with the knife; more than with arsenious acid. Chlorid of zinc acts more slowly, suitable only in certain locations as near the eye, also in the papillary form previous to the use of arsenious acid. Pain may be avoided by mixing it in a 20 per cent. solution of cocain. Arsenious acid has a more elective action on the cancer cells and should, as a rule, be used weaker than in Marsden's paste (2 parts to 1 of gum arabic). It may be used 2 to 1 or 1 to 1. This will not attack normal tissue in twenty-four hours. It should then be removed, and if there is not sufficient necrosis, applied immediately for sixteen to eighteen hours. Cases should be watched for a year or two, as there may be a reappearance. Arsenious acid may be applied to the lips if care is taken to prevent getting it into the mouth, but on the nose it is especially valuable on account of deformity.

These papers were discussed together.

Dr. R. R. Kime said that it was unfortunate that cancer of the uterus is not diagnosed early. Often the symptoms are not well defined and are very insidious, not being detected sometimes until the disease is so far advanced as to preclude operative measures. It was not possible to get women to submit to repeated examinations as recommended by some gynecologists. Every physician should insist on proper examination of all women near the menopause that present symptoms or indications of cancerous disease.

Dr. W. E. B. Davis thought that these cases were overlooked as they were so insidious in their development. Every case of diseased cervix should be treated and cured. He advised removal of the uterus and appendages for cancer.

Dr. P. L. Brouillte asked as to the danger of systemic effects from arsenious acid.

Dr. Goggans said that wherever there was cancer there had been irritation, hence the necessity of removing every source of irritation and every pathologic condition as prophylactic.

Dr. Robinson had applied arsenious acid on a surface as large as the hand and had seen no systemic effect. Marsden advised not over an inch square. If seen early, caustics are all that is necessary in cancer of the skin.

Dr. J. P. Stewart, of Attala, Ala., read a paper on

HEMORRHOIDS,

in which he dwelt on the necessity of an examination under chloroform if necessary. Where tumors are small, he used a solution of red gum as an injection into the rectum; if larger, they are destroyed with the clamp and cautery.

Dr. E. P. Johnson had treated cases successfully with injections of carbolic acid, 2 parts to 1 of olive oil, to which was added one-fourth grain of morphin to each injection.

Dr. J. B. Cowan alluded to the new operation of excising all the hemorrhoidal tissue. These cases often fall into the hands of quacks who inject carbolic acid and give temporary relief. He likes the old method of tying the tumors. In a bad case, where there was no distinct tumor, he caught the tissue with a tenaculum and thus tied it, putting in fourteen ligatures. The result was perfect.

Dr. R. R. Kime said that many hemorrhoids can be dissected out entire, and the wound closed by over-and-over catgut stitch with excellent results, leaving no raw surface to granulate. Where blood supply is marked, will require ligature at base. Has devised a speculum by which rectum can be ballooned in knee chest position in the same manner as the vagina in gynecologic work.

Dr. G. A. Baxter insisted on varying the treatment in different cases. Carbolic acid he considered dangerous. Could not examine without paralyzing sphincter. Was always able to find a distinct tumor.

Dr. R. P. Johnson said that the tumors are destroyed if the solution is strong enough and they are completely filled.

Dr. R. R. Kime read a paper on "Synthetic Perineotomy in Lacerations of the Perineum," using the term to designate a method of dividing and dissecting without loss of tissue. The redundancy is due to hyperplasia, a subinvolution, which will disappear when the cause of the laceration is removed. The method was described in detail and cases cited.

Dr. W. E. B. Davis said there was more in the man being familiar with the method he adopted than the operation. It was important to differentiate between perineal tears and those of the posterior vaginal wall.

Dr. W. E. B. Davis, of Birmingham, read a paper on "Bile in the Peritoneal Cavity and How to Deal with It." He presented an experimental and clinical study of the subject. The experiments confirmed the position taken before the American Medical Association in 1892. The constant extravasation produced peritonitis unless there was satisfactory drainage. A considerable quantity would be walled off, just as would any other irritating fluid. It was noted that where gauze was packed around the openings in the gall bladder or ducts, the animal recovered, as a rule. The field of operation was walled off completely and there was no evidence of general peritonitis. Numbers were reopened in twenty-four to forty-eight hours and this condition found. He took the position that in obstruction of the common duct

by stone, an incision should be made, the obstruction removed and drainage established without an attempt being made to close the opening, as these cases will not stand long operation.

DR. E. J. TRIPPE, of Chattanooga, reported several cases of "Appendicitis," illustrating the necessity of early operation and the fact that some die, no matter when operated on, and the technique.

These two papers were discussed together.

DR. R. R. KIME said that many cases would get well without operation, but it is very difficult to tell which. By use of salines and disinfectants many can be relieved by unloading the colon, relieving the hyperemia and establishing drainage. If a case is progressing nicely for some days and gets worse suddenly and seriously, then operate without delay. Would advise against an attempt to remove the appendix when an abscess cavity was opened, which is walled off from the general peritoneal cavity.

DR. C. HOLTZCLAW had had fifteen cases of appendicitis but had never been called on to operate. They recovered with an ice-pack over the inflamed area. Operation should be performed if there was any evidence of suppuration, elevation of temperature or collapse.

DR. G. A. BAXTER said that the danger was not in operating but in delay. The question lies in a diagnosis between obstructive and catarrhal peritonitis. When we have a distinct enlargement and induration we have obstruction.

DR. R. M. CUNNINGHAM said that Dr. Davis was departing from his usual teaching, as he had maintained that normal bile would not produce peritonitis. In a large number of post-mortems the appendix was not found inflamed once in a hundred times. Operation is indicated where there is pus, swelling and induration.

DR. J. P. STEWART always cures his cases with salines. He related a case of injury to the gall duct, followed by distension of the gall bladder. He aspirated and got five pints of fluid and bile, the next day two pints, later one pint; the obstruction then gave way and the same fluid passed per rectum.

DR. J. B. MURFREE said that no operation should be made for appendicitis unless there was some indication, such as recurrence or gross local changes.

DR. P. D. SIMS did not recall a case of death from appendicitis which had not been operated on. It might be required, but swelling and obstruction did not indicate an operation.

DR. R. H. HAYES praised the high stand taken by Dr. Davis in the surgery of the duct, and asked as to the preliminary and after-treatment. In regard to appendicitis Telamon, of Paris, had published statistics giving 90 to 95 per cent. of cures without operation. An English author gave similar statistics; whether these are reliable or not he can not say. Many claim that when one has an attack of appendicitis he has a constant source of danger in his belly. A few years back this was the main indication for the operation, and in this view it seemed that the operation should be performed at any opportune time.

DR. DAVIS thought the case of Dr. Stewart not a case of distension of the bladder, but that a cyst had formed. It was saved by the operation. The after-treatment was the same as in other cases of abdominal surgery. He thought catarrhal cases of appendicitis were common. When there is obstruction, there is pain. Each case should be treated on its merits. Some need operation. In general septic peritonitis the patient will die if operated on.

THIRD DAY.

DR. J. R. RATHMELL, of Chattanooga, read a paper entitled "Acromegaly—Report of a Case." He stated that Paul Marde first described the disease in 1886, his theory being that enlargement of the pituitary gland was the cause of the disease. In the case reported, with the symptoms common to the disorder, there were two uncommon symptoms. These were long continued abnormal rhythm of the Cheyne-Stokes variety, and the inability to retain food or drink on his stomach for three months before. Both symptoms were accounted for by the enlarged pituitary body, which weighed 475 grains instead of 5 or 10 normally. The author believes the disease to be one of trophic origin, producing changes in the bony system, especially of the feet, face and hands; that the enlargement of the pituitary body and the other ductless glands was the result, not the cause, of the disease.

DR. W. C. TOWNES, of Chattanooga, read a paper on "Acromegaly," exhibiting specimens from Dr. Rathmell's case, the enlarged pituitary gland and a part of the ileum with a diverticulum. He reported a case now under treatment, a marked feature of which was that although 52 years old, there was no impairment of the sexual function. He believed the disease to be due to the pressure on the brain produced by the enlarged pituitary body.

DR. W. G. BOGART said that these cases were rare. He had seen Dr. Rathmell's case. The enlarged tongue made articulation difficult, the labored breathing gave evidence of suffering. The points of interest were the length of time required for the development of the disease, four years, and the question whether anything could be done if the diagnosis were made early.

DR. E. A. COBLEIGH asked if it were not possible that the condition was a persistent accentuation of a normal process and, if so, as to the cause. He reported a case presenting some of the symptoms.

DR. J. BERRIEN LINDSLEY said that the paper was an evidence that the profession was advancing, and in this respect second to none. A disorder was being discussed, the name of which had not yet got into the dictionaries.

DR. J. R. RATHMELL said that the first evidence of the disease was loss of strength and enlargement of the extremities. He believed it a disease of the osseous system, especially of the feet, face and hands; but it affects the whole bony system, just as we have a pseudo-hypertrophic muscular paralysis. The line of treatment was to build up the system, and use electricity. He had got some comfort from the latter.

DR. J. B. COWAN, of Tullahoma, Tenn., read a paper on "Water versus Atmosphere the Cause of Malignant Malarial Fever," and related observations where water from clear springs was evidently the cause of malarial fevers. One case, where there were two springs connected under ground, the upper was healthful while those who used the lower had the disease. A marsh between the two formed a nidus for the development of the miasm. In almost every instance where well and spring water had been abandoned for cistern water, malarial fevers had disappeared. In a village supplied by a well, all had the disease except one family who used other water. So many similar instances had come under his notice that he invariably changed the water in his malarial cases. If sterilized water were used malarial fever would be unknown.

DR. E. T. CAMP could not agree that malaria was in the water alone; some of the poison might be so absorbed. But it was said that in the tropics one would get a chill by sleeping in the open air. He believed the air was the principal medium.

DR. C. HOLTZCLAW differed from Dr. Cowan, and related a case where there was no improvement on removing to a location where there had been no malaria for eight years.

DR. W. G. BOGART said that water was one of the means of introducing the poison into the system, but not the only means. In a certain neighborhood where different waters were used, all were affected, whether they were cleanly or not.

DR. Y. L. ABERNETHY observed that when we have a wet summer we do not have much malarial fever. The paper seemed conclusive that we get the disease from water; but why don't we have it every year and why don't we have it all the time? The old theory was that it was due to the heat, moisture and decomposition. Bowling's theory was that it was due to water so confined as to prevent evaporation. Now it is said to be due to a germ. Whichever is correct, it is true that nineteen-twentieths of the diseases of the West and South are due to malaria, so that we have to give quinin, iron, arsenic, mercury, etc.

DR. COWAN said that the reason we did not have the disease every summer was because the heat did not develop the germ. All cases of malignant malarial fever were due to drinking water. In parts of the South, where malaria was formerly prevalent but now unknown, it was due to the use of cisterns. In one case a party camped several years on a lake and had malaria every year; they escaped by taking their water with them, although sleeping in the open air as before.

DR. J. BERRIEN LINDSLEY presented a paper on "Prevention of Smallpox." He did not believe that one-fourth of the people of Tennessee were vaccinated. Doctors were not willing to acknowledge their inability to diagnose smallpox, hence mistakes occur. In Little Rock the disease was under way six weeks before its nature was discovered. A rule of sanitary boards is, in case of doubt to give the public the benefit of the doubt and isolate the case. All suspicious cases should be sent to some public institution. He related several cases where undiagnosed smallpox resulted in spreading the disease and causing death.

DR. A. BERLIN said the microörganism of smallpox was not yet discovered and we were left to empiricism. Jenner had

done more for the race than Napoleon with all his wars. In the Franco-Prussian war more French soldiers died from smallpox than were killed in battle. The disease was unknown in the German army, as the soldiers had been vaccinated.

DR. LINDSLEY said that the reason smallpox was dangerous was because of the neglect of vaccination. This fear did not exist when he was a young man starting in the profession. The profession had not done its duty in the matter of insisting on vaccination.

DR. E. T. CAMP, of Gadsden, Ala., read a paper on "A Complicated Case of Obstetrics with Rupture of the Uterus." It was a transverse presentation. The child was asphyxiated but resuscitated. The placenta not being delivered in an hour, chloroform was administered and the hand introduced into the uterus when the rupture was discovered. The placenta was adherent but torn away; morphin administered but death took place in four hours. He thought rupture took place before the version and was spontaneous. If the placenta could have been gotten away and contraction induced, the patient might have been saved.

DR. Y. D. ABERNATHY thought it possible, if a laparotomy had been performed.

DR. W. G. BOGART said that the three interesting points were: 1, the time of the rupture; 2, the cause; 3, the absence of symptoms. We would expect to have all the well-marked conditions of shock. The strange thing was that that there was no pain, loss of blood or shock. With the complications—mal-position, adherent placenta and rupture of the uterus with bad surroundings, death was inevitable.

DR. S. P. STEWART thought the patient died from hemorrhage, not from shock. A post-mortem would have been of interest.

DR. D. S. MIDDLETON thought the adherent placenta indicated a diseased structure, and this caused the rupture. The administration of chloroform opened the months of the vessels and death was from hemorrhage.

DR. C. HOLTZCLAW said the only chance was to sew up the rent after doing a laparotomy.

DR. J. R. RATHMELL said that having a general adherent fibroid placenta, the only thing was to let it alone and remove the entire uterus.

DR. G. A. BAXTER thought that an operation should have been performed quickly and the operator governed by circumstances after opening the abdomen.

DR. R. M. CUNNINGHAM thought the Doctor did the best to conserve his own reputation. The case would have died anyway. To be in line with modern surgery, an operation should have been performed.

DR. CAMP said that there was nothing to indicate the condition until the discovery was made. In a similar case he would not operate, as the adherent placenta would have produced death later.

DR. R. H. HAYES, Union Springs, Ala., read a paper on "The Nucleins and Their Relative Position in Sero-Therapeutics." The nucleins are protoplastic or bioplastic; cell substance the bioplastic or primal unit of the organism; the cell life, vital and resistant force; a proteid granular, cell life substance in which all vital energy and cell life resistant force originated, and through which all animal nutrition took place. The nucleins are proteid bodies residing in the tissue cells and the yeast of certain plants (animal and yeast nuclein). The former taken from the blood and lymphoid glands of the body, residing principally in the polynuclear blood corpuscles or leucocytes, the proliferation of which they have the power of increasing (leucocytosis). They are natural defenders, arresting and overwhelming all alien or disease germs as they enter the blood stream. Vaughan and McClintock have developed them. They are gotten up in three forms; nuclein solution from the yeast of certain plants, vegetable; nuclein solution from the tissues of the body, thymus, thyroid, liver, spleen, etc., animal; from the tissue direct, protonuclein. The principle difference between the antitoxins and toxins is that the toxins antidote or antagonize the poison or ptomaine formed by the presence of alien or disease germs, they belong to the class of albumin serums and they attack the germs direct as soon as they reach the blood stream. The nucleins are more direct, if less powerful, and have the advantage of attacking through the leucocytes any or all germs entering into the system. Reports are encouraging from eminent men. The author reported an ulcer of sixteen years standing cured in four months. Another case of ulcer of the ankle (both non-tubercular) very greatly relieved in same time. He favors, from limited experience, more general application of the nucleins.

DR. G. W. DRAKE indorsed the use of these agents on theoretical grounds. Intends to use them and await results.

DR. C. HOLTZCLAW cited the transfusion of blood as being the use of nucleins; salt water does as well. The Valentine meat juice injected near an ulcer was found beneficial, but water does better. The whole business was an advertising scheme. These preparations should be under the control of the government.

DR. R. P. JOHNSON, of Chattanooga, read a paper on "Treatment of Diphtheria," and gave his experience with established methods, indorsing especially the benzoate of soda. He read a letter from Professor Klebs, who did not speak favorably of the antitoxin treatment, but asserted better results from anti-diphtherin. He described a method of steaming the patient with quicklime to loosen the membrane by covering him with a sheet.

The following were read by title: When Consumptives Should go to Colorado and Why? by J. C. Minor; The Diagnosis of Incipient Phthisis, by L. P. Barbour; Some Simple Procedures in Tedious Labor, by R. M. Harbin; Uric Acid as a Factor in Disease, by E. van Goidtsnoven; Sympathetic Ophthalmia, by Frank Trester Smith.

The following officers were elected for the ensuing year:

President, J. B. Murfree, Murfreesboro, Tenn.

Vice-Presidents, R. J. Trippe, Chattanooga; R. R. Kime, Atlanta; R. H. Hayes, Union Springs, Ala.

Treasurer, Geo. R. West, Chattanooga.

Secretary, Frank Trester Smith, Chattanooga.

The next annual meeting will be held in Nashville, Oct. 13, 14 and 15, 1896.

BOOK NOTICES.

A Manual of Syphilis and the Venereal Diseases.—By JAMES NEVINS HYDE, A.M., M.D., and FRANK H. MONTGOMERY, M.D. Illustrated. Philadelphia: W. B. Saunders. 1895. 8vo, cl. Price $2.50.

This volume contains the "essentials" of the subject, and he who masters all that is so clearly expressed in this handbook will have little need for the more elaborate treatises. We are very pleased to note the advanced views of the authors on constitutional infection from the various venereal diseases. On this subject we quote from the introduction, p. 20:

"The proposition once held can not longer be sustained, that gonorrhea and soft chancre are purely local diseases as contrasted with syphilis, which is admitted to have systemic effects. The generalized results of gonorrhea are in many instances too striking to admit even of question; and in special cases the perpetuation of the soft chancre for years, with the damage resulting to the rectum, vulva, abdominal wall and thighs, with the production of marked cachexia, often renders that affection one of even greater severity than the milder cases of syphilis."

This concedes about all that was claimed by the "unicists," except the comparatively unimportant one of identity. That systemic poisoning could occur from the chancroidal ulcer, was a proposition bitterly fought by the "dualists," but in this case the long record of clinical experience has buried them out of sight. The authors also assert that "the evidence of a remote antiquity for the venereal diseases in general, is very strong." The authors speak of the term "gonorrhea" as a misnomer, and very properly if we mean a specific urethritis, but the ancients used the term to describe the disease which we term spermatorrhea, and their use of it was entirely correct. Paulus[1] says, "Gonorrhea is an involuntary discharge of semen, taking place frequently without erection of the privy member, owing to weakness of the retentive faculty." This is the view held by all the ancient writers. When we come to Fracastorius and the writers of the sixteenth century we find that the confusion in the nomenclature commenced in the dark period of literature. The ancients were clear enough on the subject.

Jahrbuch der Practischen Medicin.—Herausgeben von DR. J. SCHWALBE. Stuttgart: Ferdinand Enke. 1895.

This annual of practical medicine has undergone since last year an unexpected change. Up to this year it had, in com-

[1] The seven books of Paulus Aëgineta, London, 1844.

mon with similar works, continued to increase from year to year in size so that it threatened to gain pathologic dimensions. The present editor, Dr. J. Schwalbe, so well known as the editor of the *Deutsche Medicinische Wochenschrift*, saw the necessity of instituting certain changes in the make-up of the *Jahrbuch*, in the interests of the practitioner for whom it is published. So judiciously have these changes been carried out, that it is in its new form probably the best handbook of current medicine that is anywhere published for the use of the practitioner. While it fails to crowd all that has appeared in the previous year—good, bad and indifferent—into one voluminous book, or even into several volumes, it is far from being a short and limited compilation of only the most important publications, condensed within the scope of a convenient little volume. On the contrary, on 625 octavo pages we find such a thorough and critical review of last year's medical literature, that probably few, if any, really important publications have been overlooked. Much has been gained by the omission of special chapters on Anatomy and Physiology, as not pertaining to the requirements of a book of this character; but, while there has been some limit to the endless variety of publications in the different specialties, referring to compromises not yet settled among the specialists, to new theories, preliminary communications, etc., nothing has been omitted of the methods of specialism that have been or are likely to become of value in aiding the diagnostic or therapeutic resources of the practitioner.

It would be going too far to give a detailed account of the contents of this book. A glance at them and the editorial staff will show what can be expected. Following are the headings of the principal chapters: General Pathology. Pathologic Anatomy, and Bacteriology, by Professor Ribbert (Zurich); Diseases of the Nervous System, by Professor Seeligmüller (Halle); Psychiatry, by Dr. Lewald (Berlin); Diseases of the Respiratory Organs, and Diseases of the Circulatory Organs, by Dr. J. Schwalbe (Berlin); Diseases of the Digestive Organs, by Dr. Rosenheim (Berlin); Diseases of the Urinary Organs, by Professor Fürbringen (Berlin); Infectious Diseases, by Dr. Freyhan (Berlin); Anomalies of Constitution, by Dr. Freyhan (Berlin); Surgery, by Professor Kolaczek (Breslau); Obstetrics and Gynecology, by Dr. Czempin (Berlin); Ophthalmology, by Professor Horstmann (Berlin); Otology, by Dr. Koch (Braunschweig); Laryngology and Rhinology, by Dr. Michael (Hamburg); Skin and Venereal Diseases, by Dr. Joseph (Berlin); Diseases of Children, by Dr. H. Neumann (Berlin); Climatology and Balneology, by Dr. Butz (Munich); Materia Medica and Toxicology, by Professor Harnack (Halle); Forensic Medicine, by Professor Strassmann (Berlin); Hygiene, by Dr. Pfeiffer (Wiesbaden).

The book is exceptionally complete, and the abstracts are short, concise and to the point. A valuable aid in finding any desired article is—in addition to two complete indices of subject-matter and names—a system of marginal notes throughout, giving the title of every article as well as the author. It is but fair to state that a rare impartiality has been shown in the reviewing as well as in the selection of articles, American authors being well represented. The general practitioner as well as the specialist will find this work a most fruitful source of information.

Supplement to the International Encyclopædia of Surgery.—Edited by JOHN ASHHURST, JR., M.D., LL.D., Philadelphia. One royal octavo volume of 1,136 pages, illustrated by numerous wood engravings and a chromo-lithographic plate. Cloth, $7.50; leather, $8.50. To subscribers to the entire set, cloth, $6.00; leather, $7.00, and half morocco $8.00.

This volume is intended to supply the readers of Ashhurst's International Encyclopædia of Surgery a statement of such additions and changes as have taken place since the revised edition of that work was issued, seven years ago; naturally, therefore, the book is rather a series of surgical essays than a connected system of surgery. Although the conservatism of the distinguished author leads him in the preface to eschew any claim to include "thoretic novelties," yet this dictum has not prevented the various contributors to the volume from presenting very much that will be new to many.

As might be expected, the great activity that has taken place in bacteriology and surgical pathology has caused the re-writing of many topics, and in certain directions, such as that of cerebral surgery. So much has been added that the usefulness of the book will by no means be confined to those fortunate possessors of the entire work.

All the topics treated of have been brought quite up to date, and we only refrain from giving a list of the numerous titles on account of lack of space. Suffice it to say that there is no attempt at padding in this great book of over a thousand pages, but the topics are those of living interest to the surgeons of to-day.

It is printed in the same excellent style as the preceding volumes of the series, and copiously illustrated.

An American Text-Book of Obstetrics for Practitioners and Students, by various authors. RICHARD C. MORRIS, M.D., Editor, ROBERT L. DICKINSON, M.D., Art Editor, with nearly 900 colored and half-tone illustrations. Philadelphia: W. B. Saunders. 1895. Cl., pp. 1009. Price $7.00. For sale by subscription only.

This text-book is written by well-known teachers in some of our leading medical colleges, and is a credit to American medical literature. The publisher has provided good paper, clear and beautiful print with artistic illustrations. Indeed, it is only just to say that no work heretofore published in this country surpasses it in these respects. Some of the illustrations are works of high art. See for instance (Fig. 194 p. 357), plate 48, facing p. 754, and the reproduction from Sappey (Fig. 2 plate 9), facing p. 66. We can not praise the book too strongly, for it sets forth the subject in an excellent typographic fashion, and the text represents the latest teaching of the obstetric art. The names of authors are printed with the list of titles in the table of contents; an arrangement which enables us to attach the proper responsibility to each statement made. As a whole, the work covers in a fairly complete manner the department of obstetrics.

Elementary Technique in Histology and Bacteriology, by ERNEST B. HOAG, A.B., B.S., and H. KAHN, Phar. M. 1894. E. H. Colegrove, Chicago: 12mo., cl., pp. 130. Price, $1.00.

This guide in elementary technique is intended for the use of medical and other students beginning work in Histology or Bacteriology, and is therefore divided in two parts, one to the methods of preparation of tissues and of examination in the histological laboratory, and the second part to bacteriologic examinations. It is full of information and will be found extremely useful for beginners in laboratory work. The authors have made a very clear exposition of the subject.

The Anatomy of the Human Head and Neck.—Graphically illustrated by means of superimposed plates, with descriptive text by DR. SCHMIDT. English edition by WILLIAM S. FURNEAUX. New York: Thomas Whittaker; pp. 16. Boards.

This is a pictorial illustration of the head and neck, with an addition showing the structures revealed in a median section of the eye on a larger scale than the model. There is also a descriptive text accompanying the plates. It is a handy book of reference.

The Medical News Visiting List for 1896.—Weekly (undated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book with pocket, pencil and rubber. Seal grain leather, $1.25. Philadelphia: Lea Brothers & Co. 1895.

This favorably-known Visiting List has been thoroughly revised and brought up to date. It contains sections on Examination of Urine, Artificial Respiration, Incompatibles, Poisons and Antidotes, Diagnostic Table of Eruptive Fevers, and the Ligation of Arteries.

A Thumb-letter Index is furnished to subscribers at 25 cents' additional cost.

The Medical Record Visiting List and Physician's Diary for 1896.—New Revised Edition, with Calendar, Tables of Doses, Tables of Equivalents, Directions for Emergencies, Antisepsis, Disinfection, Special Memoranda, Cash Account, etc., etc. 30 and 60 patients per week—bound in black or red morocco leather with flap, $1.25 and $1.50. Circular on application. William Wood Co. Publishers, New York.

This is one of the most useful of the many excellent visiting lists on the market. Its appearance is neat and attractive, and it is not too bulky. The paper is good and the arrangement convenient.

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SATURDAY, DECEMBER 7, 1895.

THE NEW YORK COUNTY MEDICAL SOCIETY AND THE HOSPITAL APPOINTMENTS.

The ninetieth annual meeting of this large Society was held November 25 in the New York Academy of Medicine, and the following officers for 1896 were duly installed: DR. EDWARD D. FISHER, President; DR. FREDERICK PETERSON, First Vice-President; DR. J. HENRY FRUITNIGHT, Second Vice-President; DR. CHARLES H. AVERY, Secretary; DR. WILLIAM E. BALLARD, Assistant Secretary, and DR. JOHN S. WARREN, Treasurer.

The retiring President delivered his valedictory address, and referred to certain matters that agitate the the local profession to an unwonted degree. He alluded to the coroner's office as an effete and ridiculous institution. He emphasized the point that the monopoly of medical appointive positions in the county hospitals by the three large medical colleges of the city, through the favoritism of the Commissioners of Charities and Correction, was an affair that this Society should unite to oppose. DR. GRANDIN is reported to have said: "I will tell you, gentlemen, why you have been forced to submit to this outrage of arbitrary exclusion from service in public institutions—it is because you do not work together. I have seen the gradual development in this city of a great monoply in medical circles which, if not checked, will make it difficult for general practitioners to earn their living." He dwelt upon certain features of dispensary abuse; the catering of certain of the hospitals to persons in comfortable circumstances to the neglect of the really necessitous classes, and incidentally to the consequent plundering of the profession.

The Secretary stated that a committee of the Society had called upon the Mayor, who, however, had refused to see this committee on the plea of being too busy, as at the time, the Secretary said, he was engaged in marrying a couple. DR. BRILL then formally introduced certain condemnatory resolutions. DR. FREDERICK K. STURGIS, formerly a visiting physician at the City Hospital, who had felt the edge of the knife under the new plan of appointment, seconded the motion in a spirited speech, which was vigorously applauded. "I am not here as a sorehead," he is reported to have said, "but as a citizen to protest against the control of medical appointments by a monopoly. Forty years ago this same Society investigated a secret medical order whose purpose was to control all hospital and college appointments. It would seem as though history had repeated itself, and that we were called upon again for the same work. Your practice is dividing, and every year you will find it more difficult to resist the operation of the powerful medical syndicate."

DR. A. W. WARDEN spoke to the resolution in a conciliatory spirit, arguing that civil service was not the needed remedy for existing evils. DR. PALMER DUDLEY also made an effort to stem the tide of feeling, but without avail. The resolution was passed with great unanimity, and upon motion of DR. J. BLAKE WHITE the following committee was appointed to deliver a copy of the resolution to MAYOR STRONG: Doctors B. S. J. ROOSE, W. R. PRIOR and ROBERT A. MURRAY.

Following these proceedings the Society considered certain matters relative to membership. A well-known member, DR. CYRUS EDSON, resigned, and his resignation was accepted. No reasons for this step were assigned, but a fact of some significance was found in the printing of an old and somewhat disused section from the Society's ethical charter, to the effect that it is beneath the dignity of the profession for any member to affix his name to any certificate, circular or advertisement of any nostrum, mineral water, or other proprietary article intended to be used as a medicine or remedy in disease, or to any patented instrument or appliance that is intended for medical or surgical use. The resigning member is reported as saying that "the Society is hampered by too many old traditions. I have indorsed certain remedies which are beneficial to mankind, while by the rules of the Society I must not recommend them." Another matter was the expulsion of DR. EDWARD C. MANN, a specialist in nerve cases, on recommendation of the Committee on Ethics.

It would appear that there has been sudden and unlooked for stimulation of the ethical conscience of a body that has for ten years, or more, been in affiliation with the "no code" State Medical Society. We trust that the change of heart is deep, sincere and not based on any alleged approaching bankruptcy of the New York profession.

The control of the hospitals by the medical colleges of New York is to be viewed solely as a commercial enterprise, whereby the colleges are supposed to gain certain clinical advantages over any they now possess. The quickening of ethical conscience in the Society, whereby professional honor is appealed to by many who have heretofore objected to any ethical rules, shows clearly enough the absolute necessity for rules of some sort. "No code," may be extremely interesting as a theory, but it invariably has commercialism as its underlying basis.

The action of the New York Commissioners is distinctly hurtful to the profession, because it introduces an element of discord and distrust, and breeds unnecessary antagonisms. The dismissal of fifty-two physicians from hospital appointments, without warning and without just cause, is not a spectacle to be viewed with pleasure, or even equanimity, by the general profession; and we feel sure that the colleges would have acted wisely if they had acted with less speed, and contented themselves with controlling the appointments as vacancies arose on the staffs of the various hospitals, without resorting to so radical a violation of the ordinary rules of courtesy between gentlemen.

THE ARMY EMERGENCY RATION.

A valued Eastern weekly journal of medicine and surgery in its issue of November 30 last, under the heading of "The Army Ration," announces the failure of the recent efforts of the military authorities to decide upon an emergency ration for troops in active service. It gives an extract from a report of the experiences of a company of the Seventh Infantry on a march from Denver, Colo., while subsisting on an emergency ration proposed by the department board convened in Denver. The report shows that the soldiers started out with ten days' rations, but the campaign was brought to an abrupt end after four days of fifteen-mile marches. The food not only failed to satisfy the hunger or give strength, but seemed to irritate the stomach. After the first meal two of the enlisted men had to be placed under the surgeon's care. At the end of the second day thirty of the seventy men in the company were ill, and on the fourth day the whole command went into camp, and couriers were sent to town for hard-tack and ordinary coffee and bacon. Some of the soldiers were seriously ill with a stomach complaint and were confined to the hospital for several days.

Our esteemed Eastern contemporary explains all this by stating that: "The stomach pouch is constructed with a certain capacity for food which can not be gainsaid by any chemical formula which mere human ingenuity may create or theoretical reasoning devise. Each of the varied and subtle processes of digestion must necessarily adapt themselves [*sic*] to the construction and functions of an organ that has a purely vital as well as a merely chemical duty to perform. The stomach must earn its living in its own way, as by such purely physiologic effort in bringing each and all of its mechanical, vital and chemical functions into play, it can best maintain its health, activity and usefulness. No prepared or concentrated food can relieve it of any or all of its activities in that gradual conversion of a legitimate quantity and quality of food that constitutes a natural and perfect digestion. In such an aspect a moderately full stomach is something more than a feeling. Its work must be distributive rather than restrictive. It must be healthfully distended with food, bulky enough to occupy spare places, otherwise its most important function is hampered, while for lack of mechanical stimulus the intestines become stagnated into almost helpless inactivity. Hence, it is easy to see how the experiments failed, and the victims paid the penalty of outraged physiologic laws."

All this might have been accepted as very sound physiologic doctrine had the troops been restricted to a concentrated food which had no bulk in the stomach; but as a matter of fact they did have in the ration sufficient to give that distension which is "something more than a feeling," for the smallest emergency ration tested in any of the eight Military Departments weighed 22.0 ounces, the largest 32.25 ounces, and the particular ration which caused the harmful effects in the trial above mentioned 27.25 ounces; the nitrogen of the smallest amounted to 201 grains, of the largest to no less than 569 grains: the carbon of the smallest weighed 3,543 grains, of the largest 5,302 grains, while the value in calories of the smallest was 2,134, of the largest 3,526. From these figures it may be observed that none of the departmental boards went below an average diet as regards potential energy, in the proportion of nitrogen to carbon nor in the quantity needful to give the stomach its healthful distension and the intestines something to do to prevent them from being "stagnated into almost helpless inactivity." The stomach complaints affecting the Denver company were due to faulty preparation of the bean-soup tablet, not to a concentration of nutritious principles which gave the stomach no work. At the end of the second day thirty of the seventy men were ill. We believe that the stomachs of seventy men, taken at random, will submit to a total absence of food for two days without the supervention of any serious stomach complaint. There must have been something other than mere want of bulk to occasion the sickness of the men, and this something is readily found in the insufficiently cooked starch grains of the bean-soup tablet. Samples of the same ration have recently been used by the Seventh Cavalry in Arizona without any harmful affects, the only unfavorable criticism being that the soup wanted more seasoning.

We consider it premature to call the efforts of the military authorities a failure because one experiment of one of the eight departmental boards gave unsatisfactory results. Instead of being failures, we understand that the experiments of these boards have contributed much to the perfection of an emergency ration for the troops; and it is probable that a board of officers, in which the line of the army and the medical and subsistence departments will be represented, will be convened in Washington to consider their reports and to make the necessary investigations and experiments which will lead to the preparation and adoption of a suitable emergency ration.

A THEORY OF THE CORTICAL PATHOLOGY OF PERMANENT DEMENTIA.

The JOURNAL has more than once had occasion to notice the suggestive articles that appear from time to time in the medical press, inspired by the latest discoveries in the finer anatomy of the nervous centers. A very recent one of this class is that of DR. H. J. BERKLEY in the *Medical News* of November 9, entitled, "A Theory of the Causation of Permanent Dementia." Referring to some former researches which demonstrated that non-medullated nerve fibers are hard to find in the cerebral cortex, he assumes that probably there are none there that can be strictly classed as such, and that the conduction must be direct through the fiber to its termination; that naked axis cylinders ought to be a physiological impossibility in the cerebrum, for, if present, they could only give rise to irregular overflow of stimuli with corresponding confusion of thought and action. The so-called psychic cells, however, the pyramidal cells with long and short ascending processes, are distinguished from the other cortical nerve elements by the richness of their protoplasmic processes in lateral buds or gemmules, and it is through these, he holds, that the axons influence the protoplasm of the dendrons and the cells, their uncovered free endings coming into close contiguity with these gemmules, whose function it is to receive the nervous impressions of the fibre, to transmit them to the protoplasm of the dendron and thence to the cellular body. When these gemmules fail in their function through disease, or are lost, the proper conduction of the nerve impulses, according to DR. BERKLEY'S theory, is impossible. The first result is confusion in the psychic functions and, with the advance of the morbid process, coördinated thought is finally abolished as far as the affected apparatus is concerned, and with the extension of the process terminal dementia is the result. The gemmule-bearing protoplasmic processes of the nerve cell being the most sensitive and vulnerable are first affected, but later the cell body itself degenerates and plays an important part in the production of the ultimate result. The axis cylinders themselves are less vulnerable to morbid or toxic influences and their involvement only occurs after the practical death of the body cell, and therefore plays no special part except in case of actual inflammation. DR. BERKLEY has seen neurons with their processes totally degenerated and their cell bodies reduced to stumps, with their axis cylinders as perfect as those of the normal cell.

In short, therefore, the theory of BERKLEY as to the pathology of dementia is as follows: The conduction of nerve stimuli to the cell corpus is through the medium of the lateral gemmules of the protoplasmic processes; that these are specially liable to injury from toxic or morbid influences, and are the first portions of the neuron to atrophy and disappear in certain diseases of the brain; that with their atrophy and consequent loss of function we have, first, confusion and incoördination of psychic functioning, and finally with any widespread degeneration of the cortical elements a permanent dementia ensues.

His conclusions have been deduced partly from examinations of human brains and partly from experimental investigations on animals. He gives with his paper a reproduction of micro-photographs, showing the normal primordial process of a well-educated man taken from an autopsy immediately after death, and of a corresponding process from a subject of terminal dementia, showing the atrophy and absence of the dendritic gemmules.

DR. BERKLEY'S theory is at least as probably the correct one as any that has so far been advanced, and it is as well supported by clinical and experimental observation as any. It has, moreover, the merit of going no further than is reasonably warranted by the facts he adduces, and does not, like the ingenious and suggestive theorizing of ANDRIEZEN, attempt to demonstrate the pathological conditions of all the elements of the mental derangement, requiring the assumption of special psychic functions in this and that particular cortical layer for which no adequate proof is or can be afforded. It is simply a theory of the pathology of general mental failure, apparently based upon well observed facts, and because it attempts no more is the more worthy of consideration. It is not merely a suggestive theoretical paper, but is an actual and valuable contribution, and if confirmed by further investigation will be a real addition to our few positive facts as to the cortical pathology of mental disease.

VALERIANATE OF QUINIA AS A PROPHYLACTIC OF MALARIAL FEVER.

DR. LUIS CENDRERO contributes to the *Boletin de Medicina Naval*, August, some clinical facts regarding the use of this remedy at a very trying location in the Gulf of Guinea, in West Africa. The writer's station is on the little island, or cluster of islands,

of Elobey, north of the mouth of the Gaboon river, and is under the Spanish protectorate. His position in charge of the marine service at that point has afforded him ample opportunity to compare the efficacy of the different drugs, principally preparations of quinia, against unusually severe forms of malarial fever. "So severe is this scourge, says the translation of DR. CENDRERO'S report in *Sanitarian*, November, "that without exaggerating, all or very nearly all the persons connected with the Spanish service seem to be sent to the hospitals for malarial patients, once, twice, and even three times a month. On account of this grievous situation I was led to try some medicinal prophylactic measures; and having used the sulphate of quinia in doses of 20, 30, and 40 centigrams a day without success, looking for a more satisfactory result, I obtained much benefit from the use of the valerianate of quinia, although, even with the use of this salt, I did not obtain all the relief I desired."

The summary of his experiments is as follows: "The first consisted in giving a third of a gram a day of the valerianate of quinia, causing it to be taken in my presence in the morning, a little after breakfast, to one-half of the men who formed the corps under my care, leaving the other half without any treatment. At the end of the month, the result was that the seven who had no prophylactic treatment suffered from the fever, some twice, some three times during the month; while those who were treated remained entirely free from fever.

"The second test was exactly the reverse of this—the seven who were treated with prophylactic remedies during the preceding month were left during the present period without treatment, while those who were not treated now took the remedy as their comrades did the month before. Those without medicine were attacked, some more than once, and of those now treated only two had very slight attacks.

"The third and last observation was somewhat different. To all the men, doses of valeriante of quinia were given as above, during the month and a half, and the result of this test, as compared with the condition before preventive measures were employed, was that only eight entered the infirmary with fever, while in the same time, previous to treatment, there were thirty-five, the average being taken for the whole year, with malarial fever."

Before these experiments, the sulphate of quinia and the preparations of arsenic had been used with variable and not fully satisfactory results. The sulphate, used in a systematic way, had many successes to its credit, and in the absence of the valerianate operated well, especially in the recrudescence of endemic fevers.

Blank applications for membership in the ASSOCIATION at the JOURNAL office. Write for them; sent free.

HYPNOTISM AGAIN.

The *New York Medical Record* takes exception to an editorial in the JOURNAL of Nov. 16 on "The Passing of Hypnotism." It says that to say that hypnotism has had its day is a curious statement to make considering the interest that German physicians are taking in the subject at the present time. Does DR. SHRADY refer all medical questions to the standards and practices of German physicians?

The "practical side" that has come to stay, understanding thereby the legitimate use of suggestion in therapeutics, was duly recognized in our editorial; the "sensational side," or the production of hysteroid disturbances of consciousness for therapeutic ends, or practically and essentially what is known both in and out of the medical profession as hypnotism, is, the editor of the *Medical Record* states, certainly dying out. In our editorial we did not go so far as that, but merely said its day had probably well passed its meridian. There are still some able men experimenting with it and advocating it, and his statement in strict truth is a little premature. As a prophetic anticipation it may pass, but it was hardly so intended.

Undoubtedly, hypnotism will fill a large place in medical literature; it is an attractive subject in many of its relations. But as regards its usage as a therapeutic agency, not including in it the legitimate use of waking suggestion, history is repeating itself and its medical standing, we hold, is on the wane. Its most enthusiastic advocates can not claim any general support for their views except in so far as a very limited and somewhat dubious utility may be admitted.

CORRESPONDENCE.

Illinois State Board of Health vs. Northwestern University Woman's Medical Society.

To the Editor:—In the July issue of various prominent medical journals appeared a letter from the Illinois State Board of Health accompanied by a set of resolutions adopted by said Board. The undersigned, the Executive Committee of the Faculty of the Northwestern University Woman's Medical School, having carefully investigated this matter desire to make the following report, in order that no injustice may be done to the State Board.

The resolutions adopted by the State Board are as follows:

WHEREAS, The Faculty of the Northwestern University Woman's Medical School adopted a set of resolutions, criticising the Illinois State Board of Health for having issued to three non-graduate students of said college the State certificate entitling them to practice medicine, whom they claim were not entitled to receive them, and charging the Board with having adopted a lax policy in numerous other instances, thereby seriously detracting from the usefulness of the Board; and

WHEREAS, Although the resolutions were "ordered to be placed before the Illinois State Board of Health," they were furnished to the various medical publications of the country simultaneously with their presentation to the Board, and before the Board had an opportunity to make any defense; and

WHEREAS, The said college had not made any investigation of the methods or policy of the Board, and could not be in

possession of information upon which to found such serious charges; and

WHEREAS, The Secretary of the Faculty admitted to the Secretary of the Board that the resolutions were adopted without due consideration, and were not so applicable to the present Board; and

WHEREAS, In the past two years no certificate has been granted to any applicant upon any average rating less than 80 per cent. on all branches, and the questions and examination papers, and a tabulated record of all examinations are preserved and are matters of record in the office; and

WHEREAS, It is not in the province of the Board to adopt any policy regarding the admission to its examinations of non-graduates, the law prescribing that "non-graduates shall submit themselves for examinations," and further prescribing that "the examinations shall be of an elementary and practical character;" therefore, be it

Resolved, That justice demands that the Faculty of the Northwestern University Woman's Medical School, and all others interested, inform themselves as to the methods and policy of the Illinois State Board of Health in conducting its examinations, with a view to the establishment of the charges made, or of making such withdrawal, alteration or explanation of the charges as the facts may warrant; and further, that the Faculty inquire as to whether any individual interest or personal animosity prompted the drafting and circulating of the resolutions.

(Signed) B. M. GRIFFITH, M.D.
SARAH HACKET STEVENSON, M.D.

The original resolution of the Faculty of the Northwestern University Woman's Medical School, to which the above refers, is as follows:

WHEREAS, On three occasions within the past three years, the Illinois State Board of Health has licensed to practice medicine in this State students who have not properly qualified themselves for such duties and whose incompetence has compelled us to withhold the degree of Doctor of Medicine; and

WHEREAS, By common report we are informed that the State Board has adopted a similar policy with reference to numerous other persons; therefore,

Resolved, By the Faculty of the Northwestern University Woman's Medical School, that the State Board of Health be requested hereafter to make its examinations so rigid that persons incompetent to obtain the degree of Doctor of Medicine from first-class medical colleges can not obtain licence to practice from the Illinois State Board of Health.

Resolved, That the State Board of Health be urged to do all in its power to secure a modification of the State law, so that the privilege of examination for license to practice in this State can only be obtained by graduates of recognized medical schools in good standing.

Resolved, That for the protection of the lives and health of our people, we believe it is the duty of the State Board of Health to do all in its power to prevent the entrance into the medical profession in this State of any persons not properly qualified; and further

Resolved, That, in the interests of humanity and medical science, we believe the State Board should make its standard of qualifications as high as that of the best medical colleges in this country, and that it should do all in its power to aid and encourage the efforts of the profession and the people for thorough medical education and higher requirements of licentiates and for the degree of Doctor of Medicine.

(Signed) MARIE J. MERGLER, Secretary.

Replying to the State Board of Health, we beg to state that after thorough investigation we find that not only the three incompetent undergraduates referred to in our resolutions, but others similarly conditioned from our school, have been granted license to practice medicine; and we find further that it is believed by medical teachers and other members of the profession, that the State Board of Health has frequently conferred the license to practice in the State of Illinois on undergraduates whose requirements were not sufficient to enable them to obtain the degree of Doctor of Medicine from the medical schools of the State that are recognized as in good standing by the Board of Health.

This policy is not calculated to advance the standing and active usefulness of the medical profession, or to protect the public from incompetent practitioners. The Board of Health and its individual members have been *repeatedly* urged to discontinue this practice, but as these remonstrances have heretofore proved unavailing, the Faculty of the Northwestern University Woman's Medical School determined by public action to bring the matter to the notice of the profession, hoping thereby to obtain their aid in securing a better policy by the State Board.

The Board is in error in thinking that the Faculty acted hastily or without investigation, for it was familiar with the fact of the licensing of incompetent persons, not only from among *its* students, but among students of other schools. This practice has been in vogue since the first organization of the Board, but the last cases were, if possible, more flagrant and inexcusable than those which preceded them.

The Secretary of the State Board of Health is mistaken in stating that the Secretary of the Faculty of the Woman's Medical School said that the resolutions were adopted without due consideration, though another member of the Faculty did admit to him that, if his statements were correct, the criticisms were not so applicable to the present Board as to former Boards; however, the Secretary is not aware that the practices of the present Board differ materially from those followed by earlier ones composed of a different membership.

Shortly after the original resolution was passed, the Secretary of the State Board of Health interviewed several members of the Faculty, and on one of these occasions stated, in extenuation, that the particular individuals now in the State Board of Health constituted an entirely different Board from that of former years. We are aware that the State Board of Health changes more or less from time to time in its personnel; but one of the signers of the series of resolutions under consideration has been a valued member of the State Board for many years, and we can not understand why he should have allowed such a practice as granting licenses to incompetent persons at any time, without a vigorous protest.

If the policy of the Board as now constituted is better that of former years in this respect, it appears to be only a degree; for the same official, in one of these interviews, stated that no applicants for license were now passed on an average of less than 85 per cent. on all branches, whereas the resolutions printed above place it at 80 per cent.; but he also admitted that formerly applicants were passed on a grade of 50 per cent. It must be borne in mind that the grade obtained on an examination depends upon the nature of the questions, the fairness with which they have been given out, the honesty with which they have been answered, the care taken to prevent cheating, the fairness with which they have been marked, and the qualifications of the examiner. Questions may be peculiarly easy; proper care may not have been exercised to prevent them from falling into the hands of the applicant beforehand or to prevent communication by the interpreters or others at the time of the examination, or the examiner himself may have marked too high. For example: An examiner who knew very little of anatomy might consider a very poor paper on that subject of exceptional excellence.

The Secretary of the State Board explained to us his efforts to prevent cheating among applicants for midwives' licenses, and he led us to infer that similar precautions were taken for those taking the medical examinations. He asked if we questioned the honesty or ability of certain members of the Board of Health; but, as we stated to the Secretary thereof, we can not understand how an ignorant person, unable to obtain a grade of more than 35 or 40 per cent. on an ordinary examination for the degree of Doctor of Medicine, can come before the State Board within three, six, nine or even twelve months afterward, and pass an excellent examination. Teachers know that it is impossible to acquire a knowledge of medicine with this rapidity. Therefore, the inference would be that 80 or 85 per cent. by the State Board of Health is equivalent to little more than 35 or 40 per cent. by the colleges. If this is so the State Board should raise its mark still higher, or mark more carefully.

It was also admitted in one of these interviews, that one of the persons referred to was in no way fitted to practice medicine, but it was claimed that the answers obtained from her in examination were excellent, and that the Board had no option in the matter. As a possible explanation of the excellence of the papers handed in by ignorant applicants, it was suggested that any one could "cram" and pass a good examination on two or three subjects; and it was explained that it was the custom of the Board of Health to give those taking their examinations full credit for each and every branch in which they succeed in obtaining a passing mark, though they might utterly fail in all others. It will be readily seen that in an extreme case this policy would allow an applicant to pass one branch at a time every three months (we believe the examinations are quarterly), until the whole had been gone through with, while at the time the license

was granted the person might not be able to obtain a general average of over 25 per cent. We are not informed, officially or otherwise, that the Board has even yet taken any step to correct this bad practice.

It is stated in these resolutions that the Illinois State Board of Health is not at liberty to adopt any policy regarding the admission of non-graduates to examination; that is, persons mentally or morally unfit to practice medicine must be admitted to the examination if they apply, but certainly the law can not require the Board to issue licenses to such persons. In our resolution we called upon the Board, if there were defects in the law, to make all proper efforts to have them remedied. We have not been informed, either publicly or privately, that it has made any effort in that direction.

In the resolutions by the State Board of Health we are told that the law demands that the examination shall be "elementary and practical." Though the law under which the Board of Health acts prescribes that examinations shall be of an elementary and practical character, it does not prescribe that the Board of Health shall confer on incompetent persons the privilege of practicing medicine in Illinois, and the Legislature surely could have no such purpose in view when it enacted the law. If an applicant can pass a thorough examination in the elementary subjects of anatomy, chemistry, physiology and materia medica, and a practical examination in pathology, obstetrics, practice of medicine and surgery, he would be able to pass the examination for the degree of Doctor of Medicine in almost any of the recognized colleges throughout the United States.

We deeply regret that the resolutions of the State Board of Health failed to remove the belief that their methods are faulty, and we personally know another student who obtained license to practice during the past year who was unable to pass the examination for the degree of Doctor of Medicine this last spring. We have informed ourselves so far as possible of the methods and policy of the Board of Health, and we gladly embrace this opportunity to do it exact justice. The Faculty of the Northwestern University Woman's Medical School does not need to disclaim the suggestion that any individual interest or personal animosity prompted the drafting and circulation of the resolutions. This faculty, individually and collectively, is friendly to the Illinois State Board of Health, but in the matter under consideration it has been constrained, as a matter of public duty, to question the wisdom and propriety of some of its acts. We will gladly be the first to give it credit when it corrects its faulty practice, and we will gladly aid it in securing any necessary legislation for elevating the profession and for the benefit of the people.

I. N. DANFORTH,
E. FLETCHER INGALS,
MARIE J. MERGLER,
Executive Committee.

Serum-Therapy in Leprosy.

NEW YORK, Nov. 21, 1895.

To the Editor:—Mr. Luther F. McKinney, United States Minister in Bogota, writes me (Oct. 17, 1895): "I enclose an article written by Dr. Putnam of this city, in which I know you will be interested. Dr. Putnam has taken a great interest in the subject of leprosy and, as you will see, believes in the theory that the disease can be cured by the injection of the blood of an animal previously inoculated with the serum from the blood of a leprous patient. He has one patient, a woman here in Bogota, whom he has been treating in this way for about four months. When she began there was an entire loss of sensibility of the arms and lower limbs, and large leprous blotches or sores on her arm. She has entirely recovered the sensibility of the arms, but not of the lower limbs; the blotches on her arms have entirely disappeared; so says the Doctor. There are ten physicians here who are watching the case with great interest and have great hopes that extraordinary results will be obtained. The great trouble here is that there is no laboratory for the proper preparation of the serum, and the lack of proper apparatus for the carrying on of the experiments very greatly retards the investigations. To show how the medical profession is hampered in their efforts to stay this foul disease, some time ago Dr. Putnam wrote a letter to the President of the Republic, explaining to him his theory and saying that he proposed to carry on the work and visit every part of the country where leprosy existed, and called the attention of the Executive to the assistance rendered by other civilized governments in the development of the scientific study of these diseases, and suggested that the Government provide a laboratory for the purpose of assisting in the work. The President instructed the Minister of Education to answer the letter, and say that while he thought the purpose of the Doctor was good, it was a matter of personal interest, and the Government did not desire to have anything to do with it. And this while there are 27,000 lepers in the country, and the Minister who answered the letter lost his wife by the disease, and has two leprous daughters in his home at the present time. In about a month Dr. Putnam will visit the hospital again, and he says the first leper who dies while there, he will get a portion of the skin, muscle, liver and brain and send them to you."

The article which Mr. McKinney enclosed to me is entitled "Sero-Therapy," and was published in the *Herald* of Bogota, Oct. 10, 1895. In it he makes a report of a medical visit to the Lazaretto of Aqua de Dios, and the sero-therapeutic medication which he has begun there in a formal manner in the treatment of leprosy. He refers to an official offer, made by him on the 22d of last May, to carry on the project of establishing sero-therapy in Colombia. He had already begun this treatment on some private leper patient before going to Aqua de Dios. He refers to a grand lecture given by Dr. Juan de Dios Carrasquilla, in the Policlinic of Bogota, the 1st of last July, on this subject. This lecture has guided him in his experiments, and Dr. Juan de Dios Carrasquilla will be his consultant in future. At Aqua de Dios he obtained a leprous serum to be inoculated in several animals in a manner advised by Professor Ricket in syphilis, and which consists in taking some blood from the patient, inoculating the animal and returning from the animal to the patient. "In one word," says he, "to make the cultivation of the leper bacillus in the blood of an animal, instead of making it in a special apparatus for the purpose of strengthening natural immunity in the animal, for the experimental infection." He visited the hospital with the Rev. Father Crippa Salesiano, who has devoted himself to the patients, and Dr. Luis L. Gaitán, physician of the Lazaretto, and selected an adult of 16 years, in whom tubercular lepra was in full development. He took from his arm 250 grammes, into an aseptic bladder, and put the latter carefully away, leaving the blood in repose for four hours, during which he prepared the animals for the inoculation. There were two asses and three she-goats. At the expiration of the four hours he separated the serum and inoculated a certain quantity into the animals. These animals were to be kept under supervision for several days. With the blood serum of these animals he intended to inoculate thirty or forty patients early in November.

Mr. McKinney encloses me the reply received by Dr. Putnam to his application to the Colombian Government:

"REPUBLIC OF COLOMBIA, OFFICE OF SECRETARY OF THE GOVERNMENT. No. 2540.

BOGOTA, Oct. 17, 1895.

DR. CARLOS E. PUTNAM—

Sir: Regarding your report with respect to the installation of the sero-therapy in the Lazaretto of Aqua de Dios, I have to answer that the Government, reiterating to you its manifestions of approbation and very much interest in the success of the experiments which you have undertaken with so much devotion, will give to you all the moral support necessary, so that you may not be discouraged for continuing such a praiseworthy enterprise."

Dr. Putnam writes me: "We have 27,000 lepers! We do nothing for them! The acting Government pays no attention at all! We are lost!"

"Think of offering a starving man moral support," says Mr. McKinney. "Unless the Government takes the matter in hand the country is lost indeed. Forty years ago there were 400 lepers in Colombia, now there are more than 27,000. How many at this rate of increase will there be in forty years from now?"

ALBERT L. ASHMEAD, M.D.
270 W. 43d Street.

From the Shepherd Magnes.

CHICAGO, Nov. 28, 1890.

To the Editor:—To settle a dispute, will you kindly give us the origin of the term magnet as applied to the lodestone or magnetized iron. Truly yours,

A MEDICAL STUDENT.

ANSWER: It is said by Nicander (according to Pliny) that a certain shepherd, named Magnes, when taking his flocks to pasture upon Mt. Ida, found in a certain spot that the nails of his shoes and the iron ferule of his staff adhered to the ground. After the announcement of the discovery the lodestone was called the Magnet.

PUBLIC HEALTH.

Bacteria in Ice.—The dangers incident to the consumption of ice obtained from polluted sources, as lakes or ponds receiving sewage, have been much insisted on; and not only have actual instances of the communication of enteric fever in this manner been quoted, but the bacteriologic examination of different samples of melted ice have been adduced to show that the process of freezing has no influence on the number or vitality of the microbes. Ice water, for example, from the Spree, has been found to contain 1,700 to the c.cm., and from the Lake of Geneva 210, while melted hailstones yielded 72. But the recent experiments of Professor Christomanor, of Athens, go some way toward justifying the old and popular belief in the purifying action of congelation, which, as he shows, effects a partial separation of all impurities, concentrating them in the inner portion of the mass. Examining blocks of artificial ice from a factory supplied by a well, and others of water from the aqueduct of Hadrian, he observed in all a central core, forming about a fourth part of the entire volume, and, in its whitish, dull, somewhat granular appearance contrasting strongly with the perfect and colorless transparency of the surrounding ice. While the original water from the aqueduct contained 30 milligrams of "organic matter" (solids lost in ignition?) in the litre, that from the clear ice showed only 2.8, while the turbid central portion gave 105.5. So with the water from the well, the 64 milligrams in which were divided in the ice into 5.5 and 202 miiligrams per litre respectively. It is remarkable that, though the one water was charged with organic or presumably organic, impurities, to the extent of more than twice as much as the other, the relative proportions in which these were distributed in the ice were practically identical, being respectively as 9.3 and 351.6, and 8.6 and 311.3 to 100 parts, or roughly, 1-11 of, and 3 to 3½ times the impurity of the water. —*British Medical Journal.*

Sanitary Hints for Travelers to Venice and the Adriatic.—A medical contributor to the European edition of the *New York Herald*, writes upon the above subject, from a personal and repeated experience as a sojourner at Venice. He points out, in the first place, that the rate of mortality in that city in 1894 was 22.3 per 1000, making about the twentieth in the list of healthful great cities. He also gives the following sanitary data for the use of visitors:

"The stranger on arriving in Venice must take certain precautions. In winter one must protect oneself from dampness, go out little in the evening, wear flannel, take long walks and beware of the poetical gondola. In summer care must be taken not to catch cold while listening to the music on the Piazza San Marco; an overcoat should always be carried on the arm. In the restaurants travelers should not allow themselves to be tempted by oysters or shellfish which so often occasion very disagreeable cases of enteritis; under no pretext should any ice be used in the drinking water, which should only be cooled exteriorly. These last two pieces of advice are absolutely essential; their non-observance is one of the chief causes of the gastro-intestinal disorders that occur in Venice during the hot weather. This year, during the intense heat of September, the number of such cases was very high, whereas it would have been very easy to avoid them by regulating the diet more sensibly.

"The city, so wonderful in light, art and history, which still carries proudly its ancient title of Queen of the Adriatic, has a strange attraction for every one who has once put foot in her streets. When one has once been to Venice one goes again, and each time one returns something new, something not yet seen, seizes your attention and fascinates you like a dream that one suspects of being reality.

"The absence of dust in the atmosphere of Venice, its pavements in large flagstones, the saline dampness of the air, and the high atmospheric pressure form an excellent group of conditions for lessening the spread of consumption; and in the statistical tables that were furnished to me I remarked that the death rate from pulmonary phthisis was relatively very low. Thus on an average there is in Venice only one death from consumption per ten, whereas in Paris the proportion is double—two in ten. This is a very interesting fact which may lead us to send to Venice, possibly not chronic cases of phthisis, but persons with a predisposition for the disease and in danger of picking up contagion. It is evident that in sending a consumptive to Venice it would not do to choose a torpid case, but patients that are nervous, anemic and excitable.

"A splendid aqueduct, built about ten years ago, brings to the city a supply of spring water from the mountain. Since that date the sick rate from typhoid fever has considerably diminished, and gastric fever, formerly so common, is now much rarer, and since it also now assumes a far less serious character it is much easier to cure. Great care must be taken not to drink well-water, which is always more or less contaminated by infiltration, and which must contain microbes or impure elements which were probably not without their influence on the bad reputation the city used to have from a sanitary standpoint.

"In Venice apartments on the upper stories of the houses are certainly healthier than those on the lower, which, strange to say, are always more eagerly sought after. It is, perhaps, better form to live on the first floor, but it is healthier on the second or even on the third. The Venetians themselves are quite alive to this fact, as in the old palaces the finest apartments are on the first floor which is raised as high as possible by an entresol."

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, November 16 to 23, 9 cases, 2 deaths.

Michigan: Detroit, Rochester and Three Rivers, November 16 to 23, smallpox reported present.

Missouri: Charleston, November 23, smallpox reported present.

Pennsylvania: Philadelphia, November 16 to 23, 3 cases, 2 deaths.

SMALLPOX—FOREIGN.

Antwerp: October 26 to November 2, 1 case, 1 death.
Buda-Pesth: November 4 to 11, 1 case.
Cairo: October 29 to November 4, 1 death.
Dublin: November 9 to 16, 2 deaths.
Madrid: November 5 to 12, 13 deaths.
Manchester: November 2 to 9, 2 cases.
Montevideo: October 19 to 26, 6 cases, 1 death.
Naples: November 2 to 9, 1 case, 1 death.
Odessa: November 2 to 9, 5 cases.
Rotterdam: November 9 to 16, 1 case, 1 death.

CHOLERA—FOREIGN.

Egypt: To November 15, 759 cases, 604 deaths.
Hong Kong: September 14 to 21, 3 deaths.
Osaka and Hiogo: October 19 to 26, 3 cases, 1 death.

YELLOW FEVER—FOREIGN.

Cienfuegos: November 17 to 24, 2 deaths.
San Juan, Porto Rico: October 12 to November 2, 31 cases, 8 deaths.
Santiago de Cuba: November 16 to 23, 20 deaths.
Vera Cruz: November 14 to 21, 2 deaths.

NECROLOGY.

ELMAN H. BORST, M.D., of Newburgh, N. Y., died Nov. 8, 1895 He was graduated from the College of Physicians and Surgeons, N. Y., in 1889. At the time of the West Shore wreck at Newburgh in 1893, as surgeon in charge of St. Luke's Hospital, he rendered very efficient service. He was a native of Cobbleskill, N. Y., born there thirty-two years ago, the son

of Susan Vrooman and Isaac Borst. The cause of his death was pneumonia, consequent upon typho-malarial fever.

WM. STARBUCK MAYO, M.D., of New York city, and member of the University, the Authors' and Century Clubs, traveler, literateur, and toward the close of his life somewhat of an inventor, was born in Ogdensburg, N. Y., April 20, 1812, and died in New York, Nov. 22, 1895. He was a descendant from the Rev. John Mayo of an ancient English family, who came to New England in 1630 and became the first pastor of the South Church at Boston. On his mother's side Dr. Mayo belonged to the Starbuck family who were among the earliest settlers of Nantucket. Having graduated from the College of Physicians and Surgeons, N. Y., in 1832, he at once entered upon the practice of his profession in New York, the while profiting much by hospital studies, but eventually set out to make a tour of exploration to the interior of Africa. He was obliged, however, to limit it to the Barbary States, and after an excursion in Spain to return home. Beside contributions to magazines and newspapers, he published "Flood and Field, or Tales of Battles on Sea and Land" (1844); "Kaloola, or Journeyings to the Djebel;" "Kumri" (1849); "The Berber, or the Mountaineer of the Atlas" (1850); "Romance Dust from Historic Placer" (1851), and "Never Again" (1873). He wrote dramatically, and his pages are crowded with incidents.

BENJAMIN CUSHING, M.D., of Boston, Mass., who died October 16, was a man ripe in years, honors and esteem of his community. He was in his seventy-third year, and had been nearly a half century in his profession. He was a Harvard graduate in arts in 1842, and medicine in 1846. The *Boston Medical Journal* contains the following tribute to his worth:

"The exalted character of Dr. Cushing, his integrity, his sincerity, his desire not only to make his own life useful but to aid others in making their lives more useful, his devotion to his profession, his great abilities, his kindness and benevolent and sympathetic nature had endeared him to all hearts. He has ended a useful life. He has ministered to many. His name is cherished by all. Younger men in the profession owe to him a debt of gratitude that can only be repaid by imitating the example he set them, and by practising medicine along the lines of high and ennobling virtue and devotion to right principles that he taught in all his councils, and illustrated and examplified in his life. They will have to remember forever his valuable suggestions, his ever-ready sympathy and assistance, his universal and respectful recognition of their merits everywhere and at all times. We, to whom it was given to avail ourselves in every emergeney, without dread of intrusion, of his extended experience, his great wisdom and his wonderful skill, know, perhaps, better than others can know, that the community has sustained a loss that is only saved from being irreparable by the influence that he has exerted in raising the standard of professional attainment, manliness and true nobility, in his neighborhood, to a level with his own."

CARY B. BLACKBURN, M.D., of Louisville, Ky., December 4, of acute pneumonia. He was born in Woodford County, Ky., and studied medicine under the late Prof. S. D. Gross. He served with distinction during the civil war, and in 1868 removed to Louisville, where he has since resided. He was a prominent politician, having served for fifteen years as a member of the City Council.

MILTON R. COOK, M.D., of Ashtabula, O., one of the oldest practitioners of the county, died in jail where he was confined pending trial upon the charge of performing a criminal operation.

J. F. SHEPHERD, M.D., of Owensville, Ohio, while out driving, was thrown from his buggy and almost instantly killed by breaking his neck.

MISCELLANY.

Congress of Surgery of France.—The next Cor -ess of Surgery of France will be held in Paris in 1896. Professor Terrier has been named as President; M. Gross, of Nancy, Vice-President; MM. Bandoin, Coudray, Mauclaire and Rebland as Secretaries.

Prof. A. C. Cotton.—At a recent meeting of the Société Francaise d' Hygiène, Dr. A. C. Cotton, City Physician of Chicago, was elected a foreign associate member of the Society.

An Auction of Gems for Charity.—An auction of jewelry took place in New York City, on November 19, for the benefit of the Children's Grounds—to include a play-house and playgrounds at Fairmount Park, Philadelphia. The first day's sale netted not less than $50,000, and it is stated that the sale was unique as including gems of a value that had never before been offered for sale under the hammer. The gems were originally the property of the late Miss Sarah A. Smith, of Philadelphia.

Dr. J. L. W. Thudicum, an eminent chemist of London, has printed a book called "The Spirit of Cookery," designed especially to meet the requirements of medical men. The book purports to show the ethical and medical bearings of the culinary art, to contain a dictionary of culinary terms, as well as a system of general rules which will enable those who thoroughly master them to perform the principal culinary operations without reference to the frequently unintelligible records of the details of mere empiricism.

Humane Police Club.—Somebody has invented a policeman's club which has a rubber envelope and a wood core. Messieurs the thugs, will be pleased to know that when this humane club is once in the hands of our guardians of the peace, there will be no more cracked skulls. The near approach of the millenium is thus foreshadowed. As usual, we learn that the new esthetic weapon has been tried upon a dog. His dogship, naturally enough, on regaining his canine wits, wagged his tail and in his own way expressed his pleasure in having been knocked out in so pleasant and altogether humane a way.

A Fortune in a Book.—The custom of placing paper money between the leaves of a book for safety, particularly in books which are not likely to attract much attention, and forgetting all about it, was exemplified the other day when a Turin physician came upon a treasure of 40,000 lire. The physician had to refer to a book upon clinics, which was in a bookcase in a library belonging to the family of Dr. Giordano, who has been dead some two years. This wonderful book contained some Italian rentes and a receipt for a deposit at the Banca d'Italia, altogether of the value of the above-named sum. The papers were, of course, handed over to the family of the late doctor.

"Toxin: A Novel."—The novel writer, Ouida, has adopted the above sensational title for her last book. According to the review writer in the *New York Times*, the author takes pains to demonstrate, at least as clearly as she has done before, that she deserves to be classed with the degenerates. He says further, "The characters in the book do things and say things that make us wonder and admire, and they love with mighty passion and hate with equal force. In order to be in touch with the 'degenerates' of whom she is surely an early and conspicuous example, Ouida here enters into some particulars about disease which sensitive readers could spare. The man with cancer of the food and air passages, and the details of the case of diphtheria are repulsive.

The Medical Situation in Persia.—A young Persian, Dr. Malik Yonan, an assistant at the Mission Hospital at Oormiah, in Western Persia, has written the following facts for the *Christian Herald:* In Persia, the greatest need exists for medical missions. It is said there are ten million inhabitants without a physician's care or attendance. No hospitals or charitable institutions can be found outside of mission bounds, and thousands of the sick and poor are turned into the streets to die without help or remedy. Some of the natives' attempts to bring relief are futile, especially so among the Mohammedan families. For example, a priest will write a few words from the Koran on a slip of paper, and will dip

the paper in water, and give it to the patient to taste (a hundredth solution of truth!) The two mission hospitals in Oormiah are doing an immense amount of good, and are crowded with patients from near and far, some coming from the distant Kurdistan Mountains. The Mohammedan women say they are next to heaven, and the wild Koords receive kind attention and treatment, and learn that the religion of the missionaries is far different and nobler than their own. No branch of missionary work represents or accomplishes such a systematic amount of good and mercy as medicine.

Another Hospital for the Insane in Illinois.—Having hospitals for the insane for all other points of the compass, the Illinois Legislature, at its last regular session, established a new one to be called "the Illinois Western Hospital for the Insane;" $100,000 was appropriated to purchase a site in that part of the State, north or west of the Illinois river, to pay for the construction of fireproof buildings to accommodate the patients with all necessary apparatus and furnishings, and to maintain it until the appropriations of the next General Assembly are available. The government of the hospital is to be vested in three trustees, not more than two of whom shall be from the same political party, their terms to be six years each, and their appointment made by the Governor and confirmed by the Senate. They are to appoint a superintendent, who can be removed by them at pleasure, under whom shall be the direct management and control of the hospital. He must be a graduate in medicine and surgery from some reputable medical college and of acknowledged skill in his profession. And he, in turn, is to appoint a competent assistant physician who is a graduate of some legally incorporated medical college, to perform such medical duties in and about the care and treatment of the insane as the superintendent shall direct.

A Young Medical Explorer of Africa.—Dr. A. Donaldson Smith, a graduate in medicine of the University of Pennsylvania in the year 1889, has been temporarily lost to his friends in the wilds of Eastern Equatorial Africa. On November 6, he had reached Aden on the Red Sea, on his way homeward bound. He had not been heard from for a period of eighteen months, and no little anxiety had been felt by those interested in the expedition for the past few months. Dr. Smith entered Africa on the eastern coast a year ago last June, to push across the country of the Gallas and Massi to two lakes which have been recently discovered by another expedition, then on to the Victoria and Albert, his object being to carry out and complete the line of exploration from the lakes to the east coast, a distance of several hundred miles. Dr. Smith was accompanied by about one hundred and fifty Africans, and at first by an Englishman, who was subsequently obliged to return to London. Dr. Smith sent back some fine specimens of the flora of the region after he had been on his expedition a few months, for the Geographical Society of Great Britain, and some months later was reported to be pushing on, by another party whom he had met. Aside from these evidences of his safety, there were none until the arrival of his recent cablegram, as the region which he has traversed is at the present time represented by a blank space on the map.

Color Photography.—The *Chemist and Druggist*, London, in commenting upon Professor Joly's modification of the heliochromatic method of photography, remarks that there is need for more attention to the chemic side of color photography. It also adds: "We are, therefore, glad to observe from *Nature* that Otto Wiener is working at the subject in this direction, his object being the direct production of color by the influence of light upon certain chemic substances. He has studied Lippman's method in contrast with the old processes of Becquerel, Seebeck and Poitevin. In Seebeck and Poitevin's silver chlorids are used, and the colors produced are body-colors in these two cases. The production of these body-colors is a very mysterious process, but Wiener hopes that there will eventually be found a satisfactory solution of the problem. To account for the production of the colors, he advances a remarkable theory which has a well-known analogy in comparative physiology. Given a collection of compounds of silver chlorid and subchlorid of indefinite proportions, such as those which Mr. Carey Lea calls by the collective name of 'photo-chlorid,' we must suppose, according to the modern kinetic theories, that they are undergoing a rapid series of successive modifications. When the red combination happens to be exposed to red light, it reflects it without absorption, and will therefore no longer be affected or changed by it. Similarly for the other cases. This is another process of 'adaptation.' The author describes some experiments which prove that this is the true explanation, and points out the importance of this view, not only for color photography, but for the production of colors in the animal world. It is evident that Wiener is on the right track, and if others take up the matter in this way, some of us may yet see a true color photograph."

Regulation of Maternity Hospitals in Connecticut.—No person shall keep a maternity hospital, or lying-in place, it was enacted at the last session of the General Assembly of Connecticut, unless such person has previously obtained a license therefor, duly issued by the mayor, or board of health of the city, or health officer of the town wherein such maternity hospital or lying-in place is situate. Within six hours after the departure, removal or withdrawal of any child born at such maternity hospital, or lying-in place, the keeper thereof shall make a record of such departure, removal or withdrawal of such child, and the names and residences of the persons who took such child, and whatever disposition of such child or its body is made, and the place where it is taken and left, which record shall be produced by the keeper or licensee of said hospital, or lying-in place, for inspection by and upon the demand of any person authorized so to do by the mayor or board of health or health officer of the city or town in which such hospital or lying-in place is located. No keeper of any such hospital, or lying-in place, or any of his servants or agents, shall refuse permission to any person so authorized to make such inspection, to enter such hospital or lying-in place for the purpose of such inspection, and shall permit such person so authorized to inspect such hospital and all its appurtenances for the purpose of detecting any improper treatment of such child. Every person so authorized may take and remove any article which he thinks presents evidence of any crime being committed therein, and deliver the same to the coroner of the county to be disposed of according to law. The penalty for a violation of this act is a fine of not less than fifty nor more than five hundred dollars, or imprisonment not more than one year or both.

Practical Notes.

Treatment of Hiccough.—In the treatment of hiccough M. Matthieu proposes the following: Let the patient breathe rapidly, deeply and regularly forty-five to fifty times a minute. In many cases he was able to arrest the violent crises. —*Journal de Médicine et de Chirurgie*, Nov. 10, 1895.

Evacuation of the Biliary Calculi by the Stomach.—At a recent meeting of the *Société Médicale des Hôpitaux*, of Paris, M. Hayem reported the history of a patient attacked with repeated vomiting, which resembled that found in pyloric stricture. Under lavage, many times repeated, thirty-eight biliary caluli were recovered. The patient recovered, but M. Hayem was of opinion that a direct communication existed between the gall-bladder and the stomach.—*Journal de Médicine et de Chirurgie*, Nov. 10, 1895.

Treatment of Acne.—According to the *Annals de Dermatologie*, Bœck, finding that Dauphin oil (*Delphinium staphisagria*, "stavesacre") inhibited the growth of bacteria in the skin, sought to utilize that property in the following formula for the treatment of Acne:

R	Camphoræ	30
	Acid Salicylici	50
	Sulphuris precipitatæ	10
	Zinci Oxidi	2
	Saponis	1
	Ol. Dauphin	12

M. Make one application each night, wash the face in the morning with soap and warm water. The camphor in this mixture is for the purpose of masking the disagreeable odor of the oil.—*Jour. de Méd. et de Chirurgie, Nov. 10, 1895.*

Sun Glass as a Cautery.—Dr. Shepherd, in the *Yale Medical Journal* for December, 1895, in an interesting article on "The Sun Glass as a Surgical Instrument," recommends the sun glass for the removal of growths where it is very desirable

that no scar should be left and no contracting of tissue, as upon the face and eyelids. In his opinion it is simpler than electrolysis, and less likely to leave any scar, for the reason that the electric needle usually pierces the skin, and the caustic action takes place from underneath the growth or disease. He uses cocain before applying the glasses, and from his experience in the treatment of nevi, and the like, he is inclined to recommend its use in such cases.

Treatment of Cholelithiasis.—During the meeting of the Medical Society of Virginia held Sept. 3 to 5, 1895, Dr. Geo. Ben. Johnston read a paper on the Treatment of Cholelithiasis. Dr. J. McF. Gaston, of Atlanta, was present and took part in the discussion of the paper. In the course of his remarks, he paid Dr. Davis, of Alabama, a just compliment for his investigations. Dr. Gaston said:

"That while the reader claimed only to present some points for discussion, he had occupied most of the ground ordinarily taken up by those familiar with gall-bladder surgery. There were, however, some matters not usually dwelt upon by writers, to which attention might be directed. The first and most important consideration pertains to the treatment of cases in which there are gall-stones in the gall-bladder and ducts, which call for removal by incision, and it is found impracticable to attach the sac of the gall-bladder to the skin or the intestines, or to suture the wall of the duct. In these cases it has been proposed to tampon the intervening space to the external opening with gauze, with or without medication. By packing around with the gauze, and leaving the ends of the strips protruding, drainage is accomplished, and the bile or other discharge is kept from entering the peritoneal cavity. While fresh bile is not found to be an irritant to the peritoneum, the vitiated discharge which takes place after obstruction proves hurtful, and should not be allowed to enter the abdominal cavity.

"Dr. W. E. B. Davis has taken a prominent part in urging this mode of procedure, and has made numerous experiments upon inferior animals illustrating the advantage of introducing iodoform gauze into the wound for the purpose of walling off the intestines and other viscera, while it serves, by capillary attraction, to carry off the discharge.

"This has been practiced by others with the best results; and to Dr. Davis is due the credit of impressing upon the profession the advantages of this treatment in cases not admitting of the attachment of the gall-bladder to the external opening or the intestines, and in which it is found impracticable to close by suture an incision of the common duct after the removal of biliary calculi."—*Alabama Medical and Surgical Age.*

Society Notes.

Lackawanna County (Pa.), Medical Society.—The following resolutions were submitted by Dr. J. C. Bateson and adopted by the Lackawanna County Medical Society, in the city of Scranton, Pa., Nov. 12, 1895:

WHEREAS, There is a widespread and growing practice on the part of manufacturing chemists and pharmaceutical companies to put up their products in original packages covered with advertising matter giving name, dose, by whom made, and a wide range of indications for use, so that the physician finds it most convenient or necessary to prescribe in this form and thereby unwillingly injure his own business; and

WHEREAS, Many of these manufacturers publish cheap journals for advertising purposes, thereby infringing on the domain of regular medical publications, having the effrontery even to ask physicians to pay them for advertising their own goods; therefore,

Resolved. 1. That the Lackawanna County Medical Society disapproves of such methods and devices to introduce remedies and journals.

2. That for mutual protection the medical fraternity is advised not to prescribe medicines put up in the manner indicated.

3. That the State and County societies, together with regular medical journals, are invited to unite against these cunning schemes.

THE annual meeting of the County Medical Society was held in New York November 25. The following officers were elected for the ensuing year: President, E. D. Fisher; First Vice-President, F. Peterson; Second Vice-President, J. H. Fructnight; Secretary, Charles H. Avery; Treasurer, J. S. Warren——The monthly meeting of the Ramsey County, Minn., Medical Society was held in St. Paul November 25.

Congress of American Physicians and Surgeons.—At a meeting of the Executive Committee of the Congress of American Physicians and Surgeons, held in New York City November 23, the following officers were elected:

President of the Congress, Dr. Wm. H. Welch, Baltimore, Md.; Secretary of the Congress, Dr. Wm. H. Carmalt, New Haven, Conn.; Treasurer of the Congress, Dr. Newton M. Shaffer, New York City; Chairman of the Executive Committee, Dr. Landon Carter Gray, New York City; Secretary of the Executive Committee, Dr. Wm. K. Simpson, New York City.

The next Congress will meet at Washington, D. C., in May, 1897.

Hospital Notes.

ST. LUKE'S HOSPITAL, NEW YORK.—The thirty-seventh annual report of this institution has been published, covering the twelve months ending St. Luke's Day, Oct. 18, 1895. The volume of 110 pages is largely devoted to the medical and surgical service tables. The report shows that the new hospital is so far advanced that, within a few months, the buildings will be ready for occupancy. The work of the training school for nurses has gone on steadily, notwithstanding the fact that the service within the hospital has been cut down one-half. The Board of Managers have in view the amplification of the pathological work of their plant by the construction of a building, for the endowment of which the sum of $200,000 is to be raised. The approximate per diem cost was $1.61 for each ward-patient, while the price charged paying patients has been only $7.00 per week.

THE NEWPORT, R. I., HOSPITAL.—Mrs. F. W. Vanderbilt has added $5,000 to her previous contribution for the new operating building attached to the Newport Hospital, which makes her gifts for this purpose $8,000 in all, and practically pays in full for this building.

PRESBYTERIAN HOSPITAL BENEFIT.—The managers of the Presbyterian Hospital of Chicago have reason to congratulate themselves on the concert given at the Auditorium on the evening of December 2. The Theodore Thomas Orchestra, the divine Melba, and the magnificent Scalchi, made up an entertainment which will long be remembered in the medical history of Chicago. The vast Auditorium was crowded and the box office turned in a very handsome revenue to the support of the hospital.

THE MEDICAL STAFF of the Erie County Hospital, at Buffalo, N. Y., has submitted its second annual report to the superiors. The report shows that during the year from Oct. 1, 1894, until Sept. 30, 1895, the members of the staff made 1,335 visits to the hospital and 2,452 patients were treated——The Sisters of the Poor of St. Francis, having charge of St. Mary's Hospital at Hoboken, N. J., will build a large addition on the south side of the hospital in order to meet the demands for more accommodations.

Detroit Notes.

DR. HEDLEY WILLIAMSON read a paper on "Smallpox" before the Detroit Medical and Library Association at their meeting of Nov. 25. This society has issued a monthly card giving the names of the authors and the title of their papers for each Monday evening of December, and it is the most complete card that the society has issued for some time; the last day, December 30 being assigned to George Henry Fox, M.D., of New York.

DEACONESS HOSPITAL.—At a meeting of the staff of the Deaconess Hospital the following officers were elected, and the different positions assigned as noted. Staff of Deaconess Hospital: President, E. B. Smith, M.D.; Vice-President, G. A. Kirker, M.D.; Secretary, J. F. McPherson, M.D.; Consulting Surgeons, D. Maclean, M.D., H. O. Walker, M.D., A. W. Ferguson, M.D., of Chicago; Attending Surgeon and Operative Gynecologist, E. B. Smith, M.D.; Consulting Physicians, P. Klein, M.D., G. A. Kirker, MD., C. Brumme, M.D.; Attending Physicians, L. C. Newton, M.D., T. M. Lawton, M.D.; Consulting Oculist and Aurist, C. E. Frothingham, M.D.; Attending Oculist and Aurist, L. E. Maire, M.D.; Gynecologist and Obstetrician, J. F. McPherson, M.D; Consulting

Gynecologists and Obstetricians, C. H. Leonard M.D., N. W. Webber, M.D., E. W. Jenks, M.D.; Consulting Neurologist, J. E. Emerson, M.D; Attending Neurologist, T. J. Parker, M.D.; Physician for Throat, Nose and Chest, M. McColl, M.D.; Assistant Physician, J. H. Greenwood, M.D.; Physician for Children's Diseases, J. F. Bennett, M.D. E. W. Tonkin, M.D., Bacteriologist and Pathologist. Board of Directors, Officers of the Staff, ex-officio, L. E. Maire, M.D., T. J. Parker, M.D.

HEALTH OFFICE report for week ending Nov. 29, 1895: Deaths, under 5 years, 32, total, 87. Births, male, 45, female, 50; total, 95. Contagious diseases: diphtheria, last report, 34, new cases, 29, recovered 17, died 8, now sick 38. Scarlet Fever: Last report, 15, new cases 8, recovered 4, died none, now sick 19. Smallpox: Last report 2, new cases none, recovered none, died none, now sick 2, 1 from Hamtramack and 1 from Detroit.

St. Louis Notes.

WEEKLY REPORT OF HEALTH OFFICE.—Total number of deaths during the week ending November 30, 170; during the preceeding week, 160; during the corresponding period of last year, 158. Births reported, 211. Contagious diseases reported during the week ending November 30: Diphtheria, 115 cases, 18 deaths; croup, 16 cases, 8 deaths; scarlatina, 8 cases; measles, 8 cases.

THE ST. LOUIS MEDICAL SOCIETY.—At the regular meeting Saturday evening, November 30, the scientific program consisted of a paper by Dr. Warren B. Outten on "Hematomyelia," with an extended discussion by neurologists and surgeons. The paper was an elaborate examination of the subject based upon a collection of opinions expressed by leading neurological authorities in literature, and upon the personal experience of the leading neurologists of America. The deduction made was to the effect that primary and isolated hemorrhage into the substance of the spinal cord does not occur as a result of trauma; that cases where hemorrhage of that character are found are to be explained as the secondary complication of an antecedent change in the cord, rather than as the direct result of injury. The paper was a valuable one for the fact that it clearly demonstrated the uncertainty that prevails among observers with regard to the pathology, diagnosis, and prognosis of hematomyelia as an isolated condition. Whether the conclusion drawn is warranted is questionable. Certainly, as was pointed out in the discussion, the demonstration of one case of isolated primary hematomyelia by careful post-mortem would at once decide the question of the occurrence of it, no matter what past experience had been. It does not decide the question of possibility in such a matter as this to cite opinion or even past experience; the most such a reviewer can do is to emphasize the improbability of hematomyelia being the lesion in a given case of trauma open only to clincal observation.

SMALLPOX is reported from Charleston, Mo., where four cases have occurred.

THE HOSPITAL SATURDAY AND SUNDAY ASSOCIATION.—Returns are not yet in covering the collections for November 30 and December 1, but the partial reports show a gratifying prospect. In 1894 the contributions amounted to $9,992.17, which was distributed among nine hospitals in sums proportioned to the number of free patients treated during the year.

Louisville Notes.

LOUISVILLE MEDICAL COLLEGE.—The class of 1896 of the Louisville Medical College elected its officers at a meeting held in the college building last week. Sixty-seven members were present. The following were elected: President, E. R. Morris, North Carolina; Vice-President, J. W. Benham, Indiana; Secretary, O. K. Harris, Indiana; Treasurer, R. E. Egan, West Virginia; Salutatorian, J. C. Lawrence, Virginia; Valedictorian, E. B. Hardin, Kentucky. The valedictorian was the only Kentuckian on the list. He is a relative of P. W. Hardin, the recent democratic candidate for governor.

INSANE ASYLUMS—Dr. J. H. Letcher, of Henderson, a prominent Republican, is mentioned as the choice of Governor-elect Bradley for Superintendent of the Hopkinsville Asylum; and Dr. I. N. Baughman, of Flat Lick, for Superintendent of the Eastern Asylum at Lexington. Dr. Baughman has held public office before, having been pension examiner under the last Republican president.

HEALTH ORDINANCE.—At the last meeting of the General Council the Board of Public Safety presented the ordinance prepared by Dr. White looking to the prevention of diphtheria, scarlet fever and smallpox. For some weeks several public-spirited ladies have been submitting cards to the local papers, crying out for compulsory immunization of all children attending the city schools from diphtheria, and they were answered by a letter to the editor of the *Times*, calling attention to the great importance of obtaining the passage of the contagious disease ordinance. Since then the ordinance has been submitted as above reported, and it is to be hoped that the Health Committee will be importuned by every public-spirited person to recommend its passage, and the Council to vote favorably upon it. The Mayor's signature will be affixed if it is passed.

DEATH RATE.—The report of the health officer for November, 1895, shows a less number of deaths than in the corresponding month last year. In November, 1894, there were 256 deaths, and in the month just past 243. During the month consumption caused 17 deaths; diphtheria, 14; typhoid fever, 11; cerebral meningitis, 11; old age, 10; pneumonia, 29; there were 17 still-births. One hundred and thirty-three females and 130 males were born in Louisville. Annual death rate per 1,000, 16; white—168,547 population—death rate, 14; colored—36,453 population—death rate, 22; for the month, white, 1.4; for the month, colored, 1.4. There were 66 deaths during the last week in November.

Cincinnati Notes.

THE MORTALITY report for the week ending November 29, shows the following: Diphtheria 5, entero-colitis 2, scarlet fever 1, typhoid fever 3, whooping cough 1, other zymotic diseases 5, cancer 3, phthisis pulmonitis 7, other constitutional diseases 2, apoplexy, 2, Bright's disease 2, bronchitis 7, gastritis 2, heart disease 5, meningitis 3, peritonitis 3, pneumonia 12, other local diseases 29, developmental diseases 8, violence 3, under 5 years, 26; total 104. Annual rate per 1,000, 16.09; preceding week 98. Corresponding week in 1894, 112.

DR. WM. OSLER, of Baltimore, delivered an address before the Academy of Medicine November 19, taking for his subject "Higher Medical Education." Dr. Osler made a strong plea for more general interest on the part of the public and especially in the establishment of college laboratories, to which he thought the wealthy men could not make a better disposition of their money than by endowing them—this in view of the great work they are doing for humanity's sake. Dr. Osler was entertained by Col. Chas. W. Wooley.

THE Home for Incurables has just received an endowment of $1,000 from the estate of David Eckstein, which was left to a charity to be named by the Mayor.

THE Ohio Wesleyan University has received a gift of $50,000 from Dr. Chas. E. Slocum, of Defiance, Ohio, for the purpose of enabling the institution to erect a fire-proof library building.

THE arrangements are about completed whereby the University of Cincinnati will have a completely equipped medical department.

AT THE meeting of the Academy of Medicine held December 2, Dr. E. Gustav Zinke contributed a paper on "The Management of Occipito-Posterior Position." It was discussed by Drs. W. H. Taylor and Giles Mitchell.

THERE is less typhoid fever at present than for a number of years, although the Ohio river, which is the water supply, shows but two feet and four inches.

DR. F. W. HENDLEY, the Superintendent of the Cincinnati Hospital, has been promoted to the position of Major and Surgeon of the First Regiment of Infantry made vacant by the resignation of Dr. L. C. Carr.

DR. J. E. LOWES, of Dayton, has been appointed Surgeon-General of Ohio by Governor Bushnell.

A NEW medical society has been organized in the Medical College of Ohio and named for Prof. P. S. Conner, the eminent surgeon. Dr. Parley Phillips has been elected president.

TWO CASES of favus were discovered in the Children's Home last week. They were sent to the hospital.

THE quarantine on the Children's Home has been raised.

THE Laura Memorial College, which was recently furnished and presented by Alexander McDonald as a memorial to his daughter, opens with a class of forty and promises to soon become recognized among the front rank of the medical colleges for women in this country.

MRS. JANE A. GIBSON has made a second endowment of $5,000 to Christ's Hospital.

THE *Tribune* has just presented a handsome buggy as a prize for the physician receiving the highest number of votes. Dr. S. J. D. Meade, a "homeopathic" practitioner was the winner, he having obtained 33,000.

A CASE of dislocation of the fibia and tibia, forward on the femur, was admitted at the City Hospital last week as a result of a boiler explosion on a steamboat; this is the first case of this character appearing on the records.

DR. W. H. DOUGHERTY, of Corinth, Ky., was thrown from his buggy on the 25th of last month and sustained severe injuries.

THE public and Sunday schools of Zanesville, Ohio, have been ordered closed as the result of an outbreak of forty-five cases of scarlet fever.

AN EPIDEMIC of typhoid fever is prevailing at Randolph, Ohio, which is claimed to be due to an abandoned cemetery in which vicinity all the cases have occurred.

A DISCUSSION of the humanity of vivisection by a number of the profession of Cincinnati has recently been published by the *Commercial Gazette*.

Washington Notes.

WEEKLY REPORT OF THE HEALTH OFFICE.—The report of the Health Officer for the week ended November 23 is as follows: Number of deaths (still-births not included) white, 58; colored, 35; total, 93. Death rate per 1,000 per annum, white, 16.1; colored, 20.7; total, 17.5. Death rate per 1,000 per annum for corresponding week last year, 16.8. The reports of deaths to the Health Department during the past week show a continued improvement of the general health of the city. From 99 deaths reported week before last the number decreased to 93, a decline equal to 6 per cent. Accordingly the annual death rate fell from 18.68 to 17.55 for the whole population. The mortality from typhoid fever was 4, as against 7 in the week previous. This malady is evidently on the decline. During the first week of November the deaths reported therefrom numbered 17, since which time they have fallen respectively each week to 8, then 7, and now 4. The dangerous contagious diseases present no epidemic form, there having been but 1 death from diphtheria and 2 from scarlet fever. The week's health history shows the decided fall in infant mortality from 35 of those under 5 years old to 18. The fatalities from chronic and acute lung troubles stand this week at about the normal, while taking whole list of diseases in view, the general condition of the public health is satisfactory.

PEDESTAL FOR DR. GROSS' STATUE.—Col. Wilson, of the engineer corps, in charge of public buildings and grounds, is now engaged in the execution of a work placed in his care by a special act of Congress. It is the construction of a granite pedestal for the bronze statue of Dr. Samuel D. Gross, which is to be erected at a prominent point in the Smithsonian Park, between the National Museum and the Army Medical Museum. The pedestal will be of simple and impressive design. Upon one of the faces of the die will be carved a partial leaf of palm and laurel, within which will be in raised letters the name, "Samuel D. Gross," and under it in incised letters the following words: "American physicians have erected this statue to commemorate the great deeds of a man who made such an impress upon American surgery that it has served to dignify American medicine." The statue is now being made abroad upon a design of a foreign artist.

MEDICAL SOCIETY OF THE DISTRICT.—At the regular weekly meeting of the society, held on the 27th inst., Dr. N. Jacobi, of New York, read a paper on "Nephritis in the Newly Born." Upon its conclusion the society honored him with a vote of thanks. Dr. Bovee presented two specimens of fibrinous uterus, removed by abdominal section. Dr. Stone presented a specimen of appendicitis. A committee of three, consisting of Drs. C. H. A. Klinschmidt, F. C. Smith and Geo. L. Magruder, presented resolutions of regret on the death of Dr. Geo. C. Merriam.

THE SECRETARY AND DEPARTMENT OF PUBLIC HEALTH.—At a special meeting of the District Medical Association, held on the 30th inst., the subject of a Department of Public Health, with a medical man as Secretary and member of the Cabinet, was fully discussed. The matter came before the association formally by a letter from Dr. Jerome Cochran, chairman of the committee on this project, appointed by the AMERICAN MEDICAL ASSOCIATION. The President's message to the Fifty-third Congress advocating such a department, and Senator Gray's bill for its establishment, were read before the physicians present. It was voted to favor the measure, and to choose a committee to coöperate with Dr. Cochran in urging the passage of an organic law by the present Congress. The committee named consists of Dr. H. L. E. Johnson, Dr. Samuel C. Busey, Dr. W. W. Johnston, Dr. J. R. Wellington, and Dr. C. H. A. Kleinschmidt.

COMMITTEE OF BOARD OF TRADE ON PUBLIC HEALTH.—Mr. S. W. Woodward, President of the Washington Board of Trade, has appointed the following named medical men on the Committee on Public Health: Drs. Samuel C. Busey, W. W. Johnston and H. L. E. Johnson.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 23, 1895, to November 29, 1895.

Major George W. Adair, Surgeon (Washington Bks., D. C.), is hereby granted leave of absence for one month, to take effect about Dec. 4, 1895.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 30, 1895.

Surgeon F. Anderson, detached from the "Amphitrite," and ordered to the "Dolphin."

Surgeon P. M. Rixey, detached from the "Dolphin," and placed on waiting orders.

Surgeon J. E. Gardner, detached from Port Royal Station, and ordered to the "Amphitrite."

P. A. Surgeon I. W. Kite, detached from the "Franklin," and ordered to the naval hospital, New York.

P. A. Surgeon T. A. Berryhill, detached from the naval hospital, New York, and ordered to the Port Royal Naval Station.

Change of Address.

Brooks, S. D., from Chicago, Ill., to Marine Hospital, St. Louis, Mo.
Cobb, W. F., from Mona, Iowa, to Lyle, Minn.
Fowler, W. S., from 59th St. and Washington Av. to 4142 Berkley Av., Chicago, Ill.
Kaull, W. M., from Tiffin to Mexico, Ohio.
McLain, John S., from 1624 N St. N. W. to 1320 19th St. N. W., Washington, D. C.
Perry, T. B., from Fortress Monroe, Va., to Milledgeville, Ga.
Small, A. R., from 3300 State St. to 3130 Indiana Av., Chicago, Ill.

LETTERS RECEIVED.

Ayres, H. B., Indianapolis, Ind.; Ayer, N. W., & Son, Philadelphia, Pa.
Battle & Co., St. Louis, Mo.; Barker, Mrs. A., Charleston, Mo.; Beck, Carl, New York City; Beman's General Newspaper Agency, Ann Arbor, Mich.; Boehringer, C. F., & Soehne, New York, N. Y.; Blodgett, F. J., New York, N. Y.
Cottrell, A., New York, N. Y.; Cobb, W. F., Lyle, Minn.
Dussan, Anibal E., Old Bridge, N. J.
Goode, Thos. F., Boydton, Va.
Henry Pharmacal Co., Louisville, Ky.; Hayden, A. M., Evansville, Ind.; Hummel, A. L., Advertising Agency, New York, N. Y.; Hammond, Wm. A., (2) Washington, D. C.
Jordan, J. R., Montgomery, Ala.
Kegan, Paul, French, Trübner & Co., Ltd., London, Eng.; Kelly, R., Salem, Ore.
Le Count, E. R., Chicago, Ill.; Lowry, J. B., Caryville, Fla.
Macey, The Fred. Co., (2) Grand Rapids, Mich.; Murphy, T. C. Manito, Ill.; Mills, Harry Brooker, (2) Philadelphia, Pa.; McKown, T. D., Chickamauga, Ga.; Mills, H. R., Port Huron, Mich.; Morse Advertising Agency, Lyman D., New York City; Mariant & Co., New York City; Moore's Subscription Agency, Brockport, N. Y.; McLain, J. S., Washington, D. C.
Norris, A. L., (2) Farmer City, Ill.; Newman, D. C., Spokane, Wash.
Owen, W. E., Fox Lake, Wis.
Priest, W. R., Concordia, Kan.; Pendleton, G. W., Idaho Falls, Idaho; Parker, W. T., Groveland, Mass.; Pantagraph Printing and Stationery Co., Bloomington, Ill.; Pettingill & Co., New York City.
Rodi, C. H., Calumet, Mich.; Rosser, C. M., Terrell, Tex.; Ridlon, John, Chicago, Ill.; Rio Chemical Co.; St. Louis, Mo.; Randall, F. S., New York City.
Smith, B. M., Davis, W. Va.; Smart, Chas., Washington, D. C.; Sykes, G. A., New York, N. Y.; Sutherin, Jno. W., Washington, D. C.
Thorner, Max, Cincinnati, Ohil; Tulkerson, W. D., Coffeyburg, Mo.
Wallau, Geo. W., New York, N. Y.; Williams, J. F., Chicago, Ill.; Wilson, Louis N., Worcester, Mass.